DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

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THE COST OF DOING WITHOUT BUILDING CONSTRUCTION.

"IF we permit building operations to steadily diminish, we must ask the question: 'Can we afford to do without this industrial activity?' " This was one of the epigrammatic points of an address delivered at a recent convention of business men in the Middle West.

The speaker pointed out that real economy lies in obtaining that which will perform the most service. It is not the price of an article which fixes its value, but the ratio of its service to the cost.

Building construction as it exists today is a highly specialized business of more than two hundred different operating units, each specially trained to do its part.

Its service to the nation is of the greatest value. It is one of the three fundamental necessities of life—shelter, food and clothing. It encompasses the food and clothing needs, both of which are prepared under shelter.

The public, in its effort to practice the philosophy of "doing without," should remember that it is well to avoid the policy of extreme economy. The family in the rural home, or the house owner in the city, cannot afford to do without the needed water supply, heating system or bathroom facilities, be the country at war or at peace.

Recognizing the fact that building operations should go forward during the period of war, it is also well to bear in mind that construction is needed to replace construction, and to make possible increased production due to war necessities.

Plumbing and heating contractors and others interested in building construction are hoping for an increase of activity in this branch of industry. While they disapprove of the present complexion of the building field, they are not giving way to rank pessimism. Many feel that since the nation is spending $10,000,000,000 this year in war preparation, it means that vast sums are being diverted into new channels. Hence, there should naturally be a stimulation or increase of industrial activity of all kinds, rather than any cessation of it. That is the viewpoint of the optimistic contractor.

The decrease in building operations is attributed by many to the campaign of economy, which has been misinterpreted by the investing public.

The conservation of the food supply of the country was unquestionably a sane and progressive movement, but the economizing investor should not forget that it is neither national economy nor conservation to abandon necessary construction.

It appears that one of the fundamental reasons for the diminished activity of the construction industry lies not only in the present lack of transportation facilities for materials, but in the lack of a better organization of the industry as a whole—and also the federalization or governmental recognition of its usefulness during the war. Viewing the situation in this light, the "American Contractor" says: "With the construction industry not organized and not federalized, there can be no governmental recognition of the industry nor of action taken by individual units of the industry. Other industries are well organized and federalized and are receiving the co-operation of the government. In New York, Chicago, Detroit, Minneapolis, Boston and other centers, local movements are under way or projected to make local surveys to ascertain the facts as to existing conditions and to consider ways and means for co-ordinating the units of the construction industry with the further idea of forming a compact National Construction Advisory Board to co-operate with the government and assist in the preservation of the industry."

Gas Heating

Notes on Gas Heating, Showing How and Under What Conditions It May Prove Satisfactory and Advantageous

By CHAS. L. HUBBARD

GAS heating comes somewhat in the same class as electric heating, when compared with coal on a strictly cost basis, although the difference is not so great as with electricity.

In making a comparison with coal, for cost only, all estimates should be made upon a heat unit basis, and as the

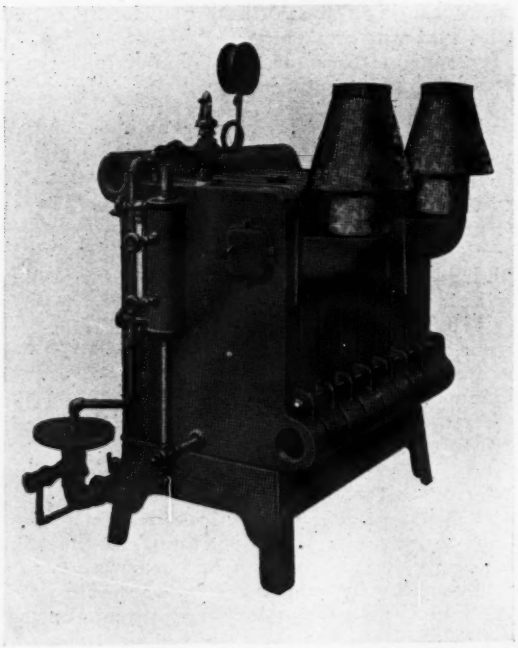


Fig. 1.

heat value of different kinds of coal and gas vary considerably, all general estimates must necessarily be approximate.

For specific cases, values corresponding to the actual fuels, it is desired to compare, must be used, so far as it is possible to determine them. The heat value of anthracite coal may be taken on an average as 13,000 B. t. u. per pound, or $13{,}000 \times 2{,}000 = 26{,}000{,}000$ per ton. Of this not over 60 per cent is utilized in the average heating boiler of good design and medium size, when properly cared for, and it may easily drop to 40 or 50 per cent in boilers of small size or when the flues are allowed to become foul. Assuming the higher efficiency, and coal at $9 per ton, the cost per 1,000 B. t. u. will be $\frac{9 \times 1{,}000}{26{,}000{,}000 \times 0.6} = \$0.00058$ B. t. u.

The heat value of gas varies considerably, depending upon whether it is natural or artificial and upon the process of manufacture. Gas burning boilers have a higher efficiency than coal fired boilers, the average being about 80 per cent.

Gas heaters or radiators placed in the room have a higher efficiency, as practically all of the heat generated is utilized except a small amount passing off through the vent pipe with the products of combustion. Assuming a thermal value of, say, 650 B. t. u. per cubic foot for a given manufactured gas, and a boiler effiicency of 80 per cent, the cost per 1,000 B. t. u. at $1.00 per 1,000 cubic feet will be $\frac{1 \times 1{,}000}{650 \times 1{,}000} =$ $0.0015, or $0.0015 \div 0.00058 = 2.6$ times as much as coal for the conditions assumed.

This comparison has been made on a stated basis and, of course, only applies to the conditions assumed, which are for continuous operation, as during the winter months in the northern states.

During the spring and fall, however, or for winter heating in the southern states, the demand for heat is intermittent and the excess cost of gas over coal is greatly reduced or may entirely disappear.

A gas burning equipment may be regulated to meet varying conditions automatically without reducing the efficiency. With coal this is not possible to any such extent, and the efficiency falls off rapidly with a reduction below the normal, for which the boiler was designed. Again, if the fire is allowed to get very low or go out entirely, a large amount of heat is wasted, when it is re-kindled. If individual gas heaters are used, the saving is still greater because they have a higher efficiency than a gas-fired boiler (radiation losses being utilized), and furthermore may furnish the necessary heat when it is required in only a portion of the rooms.

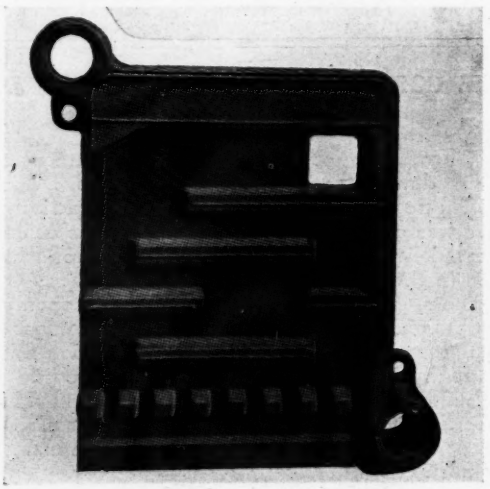


Fig. 2.

With natural gas at 30 or 40 cents per 1,000 cubic feet and a thermal value of 950 B. t. u. or more, the operating expense of a gas-fired boiler may be even less than for a coal burning boiler, and with the present high prices for coal, manufactured gas may compare favorably, when cost of labor, handling of ashes, etc., are taken into account.

In a general way, gas heating may be divided into two classes: (1) That in which gas is substituted for coal or other fuel in a boiler or furnace of the usual type, and (2) where individual or independent heating devices are placed in the different rooms.

Heating systems coming under the first division are not, in general, used at the present time, except in the natural gas regions, unless employed as an auxiliary to a coal heating boiler for use during the spring and fall for intermittent use. In some cases, convenience and cleanliness are of more importance than fuel cost, in which case boilers burning manufactured gas may be used. A boiler of this type is practically automatic in its action, requires a minimum of attention with no handling of coal or ashes and is entirely free from dust or other litter. When used as an auxiliary to a coal burning system, it is not only more convenient but may be more economical to operate in many cases, where intermittent use is required to any considerable extent.

A typical steam boiler of the sectional type, designed especially for using natural gas, is shown in Fig. 1; one of the sections in Fig. 2; and the base carrying the burners in Fig. 3. In general form it is like the ordinary cast-iron heating boiler of this type, except a greater proportion of the heating surface is placed close to the source of heat, as indicated by the row of knobs near the lower part of the section shown in Fig. 2. These knobs, when the sections are assembled, form a perforated surface just above the flame, the hottest portion of which is from 2 to 4 inches above the burner. Referring again to Fig. 2, it will be seen that above these knobs are ample passages for the hot gases to flow from the lower to the upper portion of the boiler, where the products of combustion enter the smoke pipe. With the exception of a small space in front, the hot gases are entirely surrounded by water, thus reducing the loss by radiation to a minimum. The burners are of the Bunsen type, burning a mixture of gas and air. There are nine burners in the base shown in Fig. 3, each extending the entire depth of the boiler. They are equipped with an adjustable mixer and orifice gas valve to take care of the variation in pressure of the gas in different localities.

It will be noticed that the central burner has an independent connection and is not under the control of the automatic regulator. This arrangement is a safeguard against the complete shutting off of the gas by the regulator.

Steam boilers of the make shown are built in sizes having ratings from 600 to 1,950 square feet of direct radiating surface.

Hot-water boilers of the same make run from 960 to 3,120 square feet of surface.

Steam boilers are rated upon a basis of 960 B.t.u. per cubic foot of gas; steam at 2 pounds pressure; and a radiator efficiency of 250 B. t.u. per square foot of surface per hour.

Hot-water boilers are rated for water leaving the boiler at a temperature of 180 degrees. There are other boilers of the same type upon the market, this make simply being chosen as representative of its class.

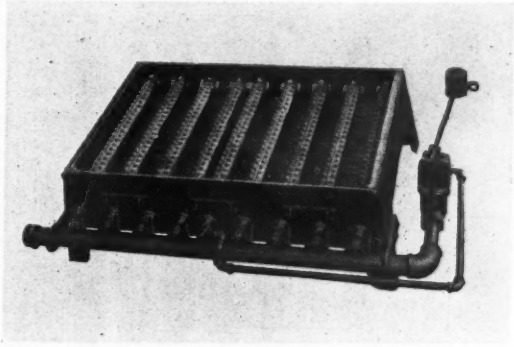


Fig. 3.

While gas-fired steam or water boilers are desirable under certain conditions, it is the individual or room heater which has the widest field of practical application. Heaters of this type are of two general classes, known as stationary and portable. Stationary heaters, as the name implies, form a permanent fixture like a radiator or warm-air register and are usually installed under a mantel.

Portable heaters are of a form which is easily moved to different parts of a room or from one room to another, as may be desired. They are of light construction and are connected with the gas supply pipe by means of a flexible tubing which is easily detached. In addition to these are heaters of a semi-portable type, which are connected in such a manner that during the heating season their position is not easily changed, but which are generally removed from the room during the summer.

Individual heaters may be still further subdivided according to the character of the heat, which may be radiated from the flame, either directly or indirectly, or may be transferred by convection, the latter being of greater importance in the

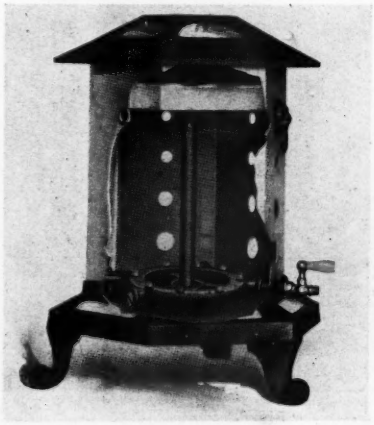


Fig. 4.

Fig. 5.

Fig. 6.

average heater. The convected heat is obtained in part from the products of combustion, while the remainder is given to the air as it circulates over the hot surfaces. Direct radiant heat is given off from the flame itself, and indirect heat from heated surfaces exposed to the flame or products of combustion.

Two kinds of flames are employed, the luminous and the

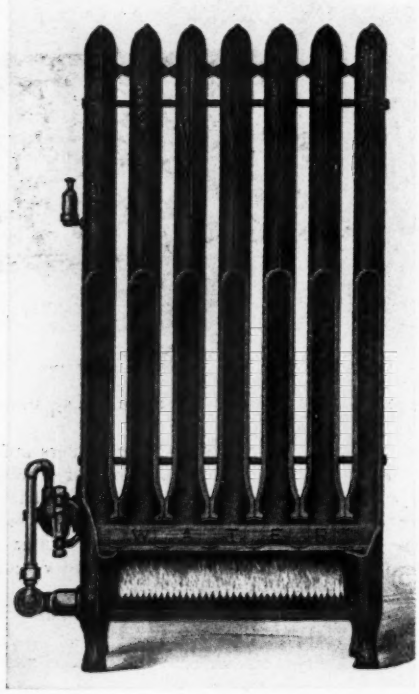


Fig. 7.

Bunsen or atmospheric, according to the type and action of the heater. Direct radiant heat is obtained from the luminous flame, while either may be employed for indirect heating.

Luminous flames may be obtained by means of a burner, giving a round or flat flame, the former being somewhat cheaper to construct, as it consists simply of a series of small holes drilled in the casing of a metal chamber of convenient form. A flat flame is rather more efficient but requires a more expensive burner, having a tip of lava or some similar material.

One of the simplest forms of the portable heater is similar to the ordinary oil heater, except a gas flame is used instead of kerosene. It has a cast iron top and base and sheet iron drum. The burner varies in different makes, but commonly consists of a series of lava tips set in a metal ring, thus giving a series of flat, luminous flames. A more elaborate heater of this type is illustrated in Fig. 4, a portion of the drum being cut away so as to show the burner. Suspended over the burner is a heat-retaining fire brick, which stores direct heat and adds to the radiating surface of the heater, thus increasing its efficiency. The drum in this case is of white porcelain, and the top and bottom of iron, finished in dull black, thus presenting an attractive appearance.

A large size natural gas heater, similar in general appearance to a coal stove, is also manufactured. This heater has a burner of the round jet type and gives an atmospheric flame, the mixing valves being placed near the connection with the supply pipe. This type of heater is equipped with a basket grate above the flame, filled with a material which becomes incandescent and presents the appearance of a hard coal fire.

A number of radiator heaters have luminous flames below each vertical tube, which is either round or elliptical in section and approximately 4 inches in diameter. Different heating capacities are obtained by varying the height and number of tubes. There are various modifications of this type of heater, some being designed for an atmospheric flame, while others are arranged to increase the length of heated gas and air travel over the various surfaces.

Another simple form of heater much used is the reflector type, having a polished copper back so arranged as to reflect both heat and light into the room (see Fig. 5). The burner is located at the top, as shown in the illustration, and a screen is placed over a portion of the open front to prevent inflammable materials from coming in contact easily with the flame. This type of heater is made in many sizes and styles, and from its simplicity of construction and operation is much used in residences and in rooms of small and medium size.

A heater, similar in appearance to the above, but having the back covered with asbestos, is used to a considerable extent. The sheet forming the back is covered with long fibre asbestos attached by means of silicate of soda, which, when the burner is lighted, becomes incandescent and presents a pleasing appearance. The objection to these heaters comes from the fact that it is difficult with the usual construction to get a suitable air supply and consequently poor combustion. Furthermore, the asbestos becomes stained with use

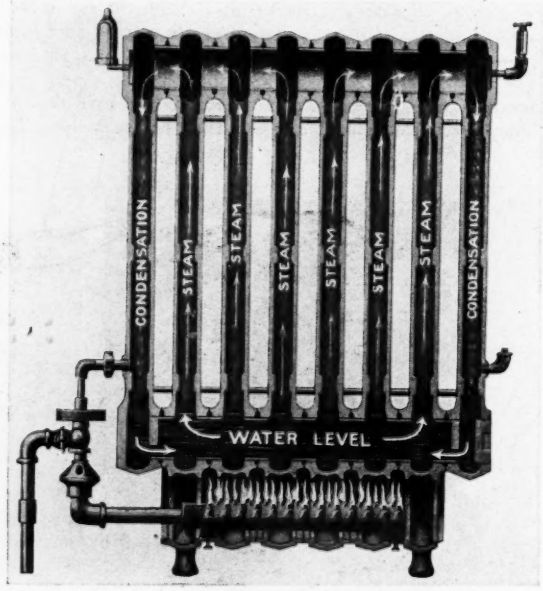


Fig. 8.

and is therefore not very attractive when the burner is not lighted. A common form of this type of heater, which is usually placed beneath a mantel to represent a fireplace, is shown in Fig. 6. Heaters of this kind are necessarily stationary.

Another type of heater, along the same line is the gas log, in which the burners are of clay or earthen ware designed to imitate wooden sticks or logs. These are hollow, and serve as mixing chambers for the gas and air, which issues through small holes and burns upon the outside of the log. Here,

(Continued on Page 376.)

European Plumbing and Sanitation

Notes on Plumbing As It Is Done in Great Britain, France, Belgium, Germany, Austria and Russia

By ARTHUR BATEMAN

Continued from Page 330 in the November 24th Issue.

A hollow roll is shown in Fig. 20. With these rolls the wooden cores are dispensed with, but copper ties are often used which materially strengthen the rolls. This method of jointing is ideal for stone cornices and the like where wood cannot be securely fastened. They are also better on steep pitched roofs and in positions ex-

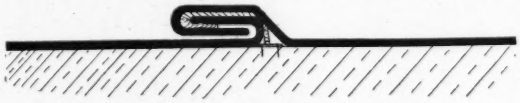


Fig. 20.

posed to high winds, for the undercloaks are in contact with each other portion and cannot slip apart. Again, the whole cannot give way due to the copper ties, which are provided at regular intervals throughout the whole length of the rolls.

However, they soon become damaged and unsightly if persons walk on them, or should anything fall on them. They are smaller than the solid rolls, their height rarely exceeding 1½ inches.

Two sloping roofs meeting at an internal angle form a valley gutter as shown in Fig. 21. These should be made wide enough for a man to walk in without doing

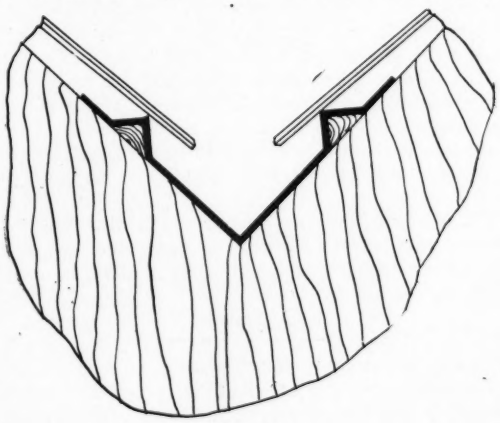


Fig. 21.

damage to the slates or tiles. The laps or passings, that is, where the lengths overlap each other, should be 5 inches. The lap under the slates including the tilting fillet need not exceed 4 inches.

Hips and ridges are formed by two sloping roofs meeting at an external angle. In days gone by almost every hip and ridge was covered with lead. A few of these were highly ornamental, but strange to say this particular branch of the work was carried out in rather a crude manner. Usually, a rough round roll was nailed to the hip or ridge. This was covered with lead, and the lead secured by lead-headed nails driven into the side of the roll as shown in Fig. 22. Of late years, however, ornamental ridges and hips of various colored tile have en-

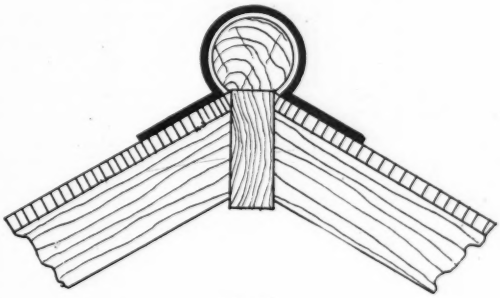


Fig. 22.

tirely superseded the leaden forms, and have added greatly to the architectural beauty of the building.

A tapering parapet gutter is shown in plan and sec-

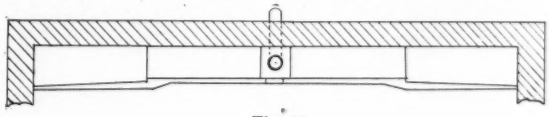


Fig. 23.

tion Fig. 23 and Fig. 24, while a cross section of the cesspool, socket pipe and head is shown in Fig. 25. In order to secure the depth for the drips, it is necessary to make the gutter tapering. This is accomplished by

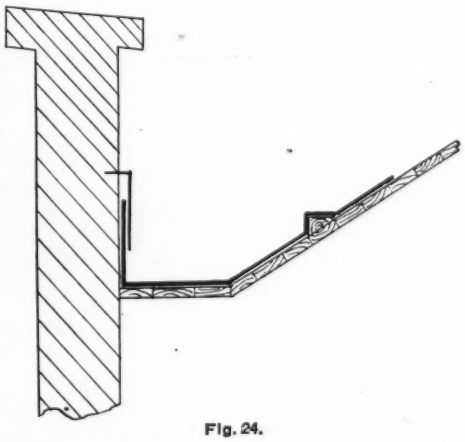


Fig. 24.

placing the gutter boards on the top of common rafters, supported on bearers of varying lengths, which give the desired pitch to the gutter. Obviously, the gutter is widest at the highest point, and the lower the pitch of

the roof, the wider the gutter. If this type of gutter is short, a cesspool is placed at the most convenient end, but should they be of considerable length it is an advantage to place it in the center as illustrated.

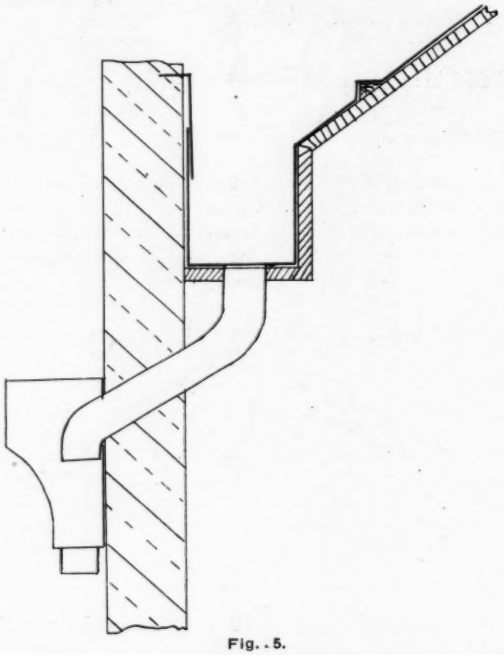


Fig. 5.

Cesspools up to 8 inches in height can have their corners bossed up, which obviates all soldering, but above

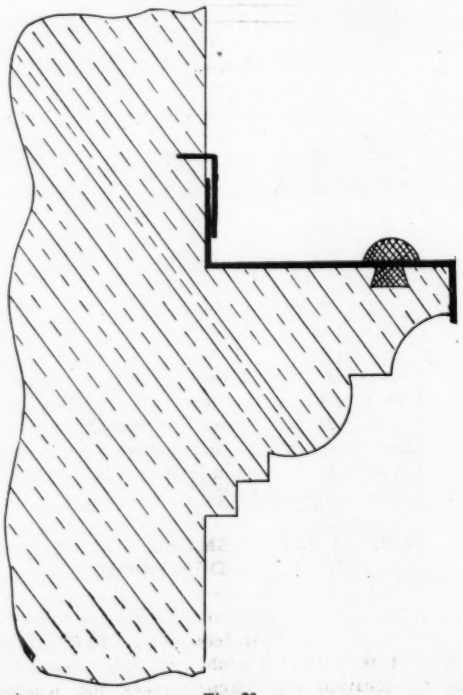


Fig. 26.

this height the angles are usually soldered. A socket pipe, 4 to 6 inches in diameter, is soldered to the bottom of the cesspool and discharges into a head fixed on the outside of the wall. Many elaborate cast lead heads dating back to the year 1600 are still in existence and are in perfect condition. However, ornamental cast iron heads are used on nearly all modern buildings at this time.

Continuous flashings are used in connection with these gutters. If the parapet wall is of brick, a convenient horizontal joint is raked out and the lead inserted in it to a depth of at least 1 inch. The lead is secured with lead wedges, and the joint pointed up with Portland cement. Should the wall be of large dimensioned stones, a raking joint is cut in the stone work, and, after the lead is inserted, the joint is run full of molten lead and caulked when cold. This is known as burned-in flashing.

Fig. 26 illustrates a method of covering a stone cornice with lead. The lead is turned up the wall some 4 inches,

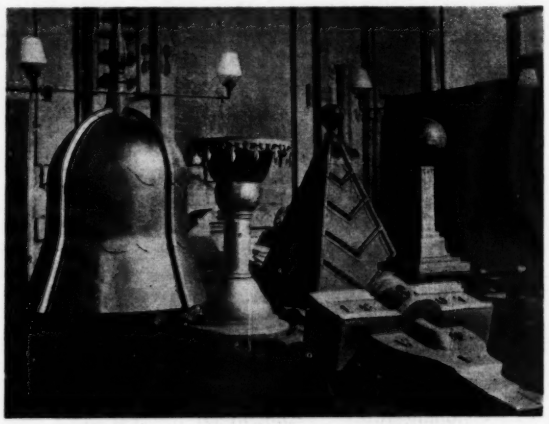


Fig. 27.

and this is made weather proof with continuous flashing. If long lengths are necessary, hollow rolls are used for joining the pieces and the free lead is secured at intervals by means of lead dots. The latter are made by cutting a wedge-shaped cavity in the stone work and pouring molten lead through a semi-circular mold. The extreme free edge must hang ¾ inch clear of the stone work to prevent the water tracing down and disfiguring the cornice.

Fig. 27 shows how domes, towers, finials, etc., may be covered with lead. This work was executed by plumbing apprentices in an evening plumbing class in London, England.

[Finis.]

Try This.

The quick wit of a traveling salesman who has since become a well-known proprietor was severely tested one day. He sent in his card by the office boy to the manager of a large concern, whose inner office was separated from the waiting-room by a ground-glass partition. When the boy handed his card to the manager the salesman saw him impatiently tear it in half and throw it in the waste-basket; the boy came out and told the caller that he could not see the chief. The salesman told the boy to go back and get him his card; the boy brought out five cents, with the message that his card was torn up. Then the salesman took out another card and sent the boy back saying: "Tell your boss I sell two cards for five cents."

He got his interview and sold a large bill of goods.—"Pittsburgh Chronicle-Telegraph."

QUESTIONS & ANSWERS

TROUBLED WITH STEAM IN ELEVATOR SHAFT AND IN PENT HOUSE.

Editor "Domestic Engineering": Herewith you will find two pencil sketches showing plan and elevation of an elevator shaft, which we have been asked to remodel in order to eliminate certain conditions, which we will explain.

The elevator shaft is 7x7 ft. square and 60 ft. high. At the top of the elevator shaft is a skylight. About three to four feet below the shaft is an iron grill. Inside of the elevator shaft is a motor enclosed in a corrugated iron pent house. There are openings through the brick wall leading to the pent house which cannot be absolutely closed up.

The owner has leased the basement of his building to a laundry establishment, and when they open the large doors in the basement leading into the elevator shaft, a large volume of steam rises up through the elevator shaft, strikes the skylight and enters the corrugated iron pent house, causing a lot of trouble with the motor and the machinery.

Now we have been thinking seriously about putting a steam coil right under the skylight. The temperature of the elevator shaft is 75 degrees and we thought that, if we raised the temperature in the shaft at the top to 140 degrees, drying the exhaust steam that is rising up the shaft, this would prevent the steam from entering the pent house and condensing.

We first planned to place an 18-inch disc fan in the

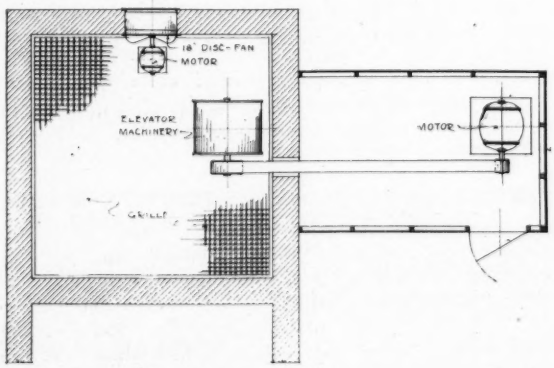


Fig. 1.

side wall, and exhaust the steam from the top of the pent house, but we were afraid that this would only cause a larger volume of steam to be raised to the top of the elevator shaft and enter the pent house, and would not remedy the undesirable condition.

Would it be better for us to place a steam coil around the side wall and put a good ventilator on the bottom of the skylight to exhaust the steam?

Will you kindly look into this arrangement, and let us have your suggestions on this matter?

If you suggest a steam coil, will you kindly give us the number of lineal feet of 1-inch pipe it will require and the best method of figuring same.

Philadelphia. A. W.

The pencil sketches submitted with the above communication detailed a plan and elevation of an elevator shaft and corrugated iron pent house on the roof of the building. These we show by Figs. 1 and 2, Fig. 1 being a plan and Fig. 2 an elevation showing the conditions of construction as outlined.

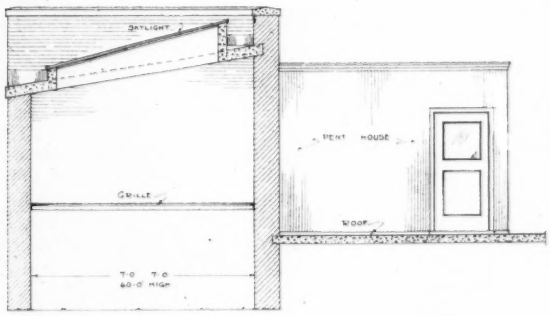


Fig. 2.

We do not believe that a steam coil will remedy the trouble as it would be quite impossible to dry the steam in the manner described. A fan as illustrated or a good ventilator on the top of the elevator shaft would quickly rid the shaft of steam, and this, we believe, would prove much more serviceable than a steam coil.

It would be a better plan to shut off the source of the trouble by using a fan in the basement to rid that section of the building of the steam.

We presume that the elevator is used for freight and it might be possible to use hatch doors on each floor. These can be installed to open automatically, as the elevator passes through a floor, and to close before the doors on the next floor open. Several manufacturers of elevators make appliances of this kind.

REMOVING TOBACCO SMOKE AND CLEARING AIR OF LODGE ROOM.

Editor "Domestic Engineering":—Enclosed find sketch showing a room 40 by 52 feet in size, having a 15-foot ceiling. It is used for club and lodge purposes and owing to location and circumstances the windows at times cannot be used for ventilation, and the air of the room becomes foul and oppressive and more or less filled with tobacco smoke.

There are three flues in the inside wall as indicated

on the sketch about 6 by 13 inches in size, which have small registers, about 10 by 12 inches below the ceiling. These do not seem to be of much account. Can you suggest a remedy?

Buffalo, N. Y. "Ventilation."

The inquiry of correspondent does not call for ventilation in the sense that we understand the term, that is,

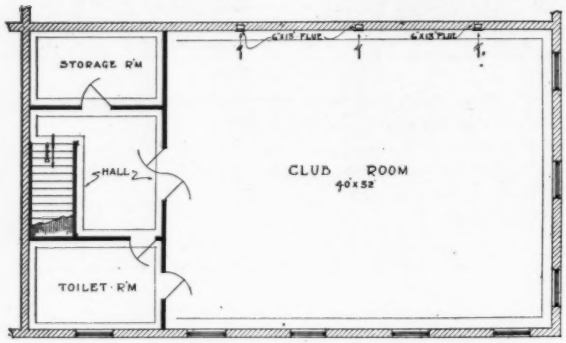


Fig. 1.

the removal of foul or vitiated air and the provision of a supply of pure outside air.

If we understand the communication correctly this is a case of removing the smoke and clearing the air of the room.

The sketch submitted is shown by Fig. 1, and shows a

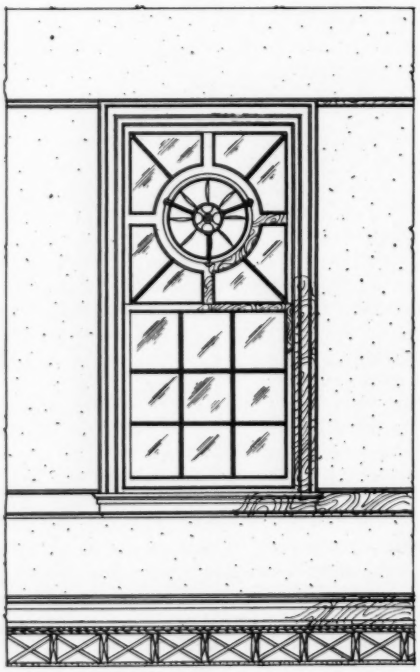


Fig. 2.

floor plan of the room. We should like to know, if this room is on the top floor or on an intermediate floor of the building, and if on the top floor whether there is an attic space between the ceiling and the roof of the building.

Two methods of smoke removal may be considered. The flues, as shown on the sketch submitted, are valueless unless connected to a good ventilator or exhaust fan. The matter of expense is doubtless an item to be considered. If the room is on an intermediate floor the upper sash of the center rear window may be framed to accommodate a light-weight, small exhaust fan provided with a direct-connected electric motor and wired from the nearest lighting fixture or from a special switch. This method is illustrated by Fig. 2.

The room (40 by 52 by 15) contains 31,200 cubic feet of air. An 18-inch propeller fan, operated at medium speed, will easily exhaust from 2,500 to 3,000 cubic feet per minute which would mean one complete air change in the room eleven or twelve times hourly. This is not sufficient to seriously interfere with the heating arrangement of the room, and yet is sufficient to remove practically all of the smoke and otherwise contaminated air.

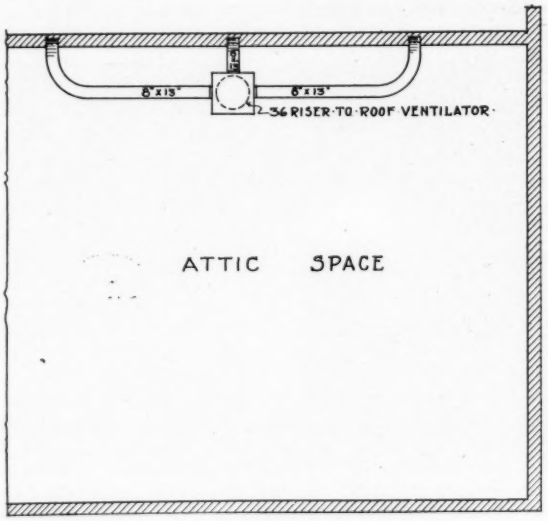


Fig. 3.

If there is attic space, the flues shown may be connected by galvanized iron ducts to a single outlet, on which a good type of ventilator (possibly 36 inches in size) may be placed as suggested by Fig. 3 or an exhaust ventilating fan may be employed to discharge the air.

If the room is on the top floor of the building, one or two ventilating registers may be placed in the ceiling, opening into galvanized ducts leading to the roof, on which ventilators should be placed.

SIMPLE PLAN TO OBTAIN POSITIVE SUPPLY OF HOT WATER WITHOUT MIXING.

Editor "Domestic Engineering":—In the October 27th issue of your valuable publication C. A. Bubb asks for opinions on his range boiler tappings. He is all right on tapping the boiler ¾ inch all around, but I don't like his bottom cold water supply. It will not permit boiler supply to drain, when water is shut off in winter time, without draining the entire boiler and stove coil. It would have to be piped, as shown in Fig. 1 herewith, and even then under certain conditions the tank would syphon out.

His tapping at the bottom would prevent boiler from draining out all sediment.

I have been in business twenty years and have never seen a tube rust off and fall away.

Kindly give your opinion and invite suggestions on

this one: A party has a 30-gallon tank in basement connected to a furnace coil. They want more hot water without buying a big boiler. They have to heat two 30-gallon boilers, which is easy. The problem is to get the hot water to draw out of both boilers without mixing with cold, or drawing hot water out of one and leaving the other dead. I tried this, as shown by Fig. 2, and it works pretty well, but not always the same. The valve being partly closed makes water draw from B about equal with A.

Washington. B. J.

The sketch shown by B. J. in Fig. 1, herewith, is the same as that recommended by C. A. Bubb, except that Mr. Bubb takes his return pipe for water back or other heater from a tapping at A instead of at center of bottom, as shown here.

B. J. asserts that sediment will gather in bottom of Mr. Bubb's boiler and cannot be drained off. No doubt he is right. But then Mr. Bubb's connection has the advantage of being above the sediment line and consequently not get choked with sediment as quickly as that of B. J.

We note B. J. carries his cold water supply pipe up to the top of boiler, then drops down to basement ceiling. Probably it connects to the cold water main there. And he says that even if this pipe is run up and down as shown it might under certain conditions siphon the boiler. He is right in this belief.

In Fig. 2 B. J. does not show a circulation pipe connected to tank B at any place. The way he shows this boiler connected up with one pipe only, will not work. The boiler B would always be dead by this plant. But

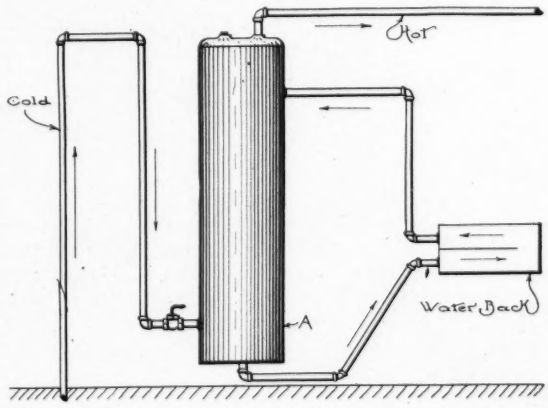


Fig. 1.

his letter infers that both boilers become heated. Therefore we are sure he has forgotten to draw in the circulation pipe.

It is quite clear that Fig. 2, as it stands, is just a single upright range boiler connected in the ordinary way to a furnace coil, and boiler B is like a big air chamber connected to the hot water distributing pipe—only it is full of cold water.

In order to heat boiler B as well as A, a circulation pipe may be run from bottom of B to A or to return pipe C.

Suppose it connects to side tapping of boiler A, as shown by dotted lines at D, then the natural tendency is for boiler B to become entirely heated before A begins to heat. This is due to B being located above A.

Even if circulation D is extended down and connected to C instead of side of boiler, the upper boiler will heat first and A will only become hot after B is hot. This being so, it is evident that cold water may be drawn up through the valve from lower boiler, while hot water is being drawn from upper boiler. The hot and cold by mixing in distributing pipe will reduce the resultant temperature of water drawn at faucets.

It is only when both boilers contain hot water that

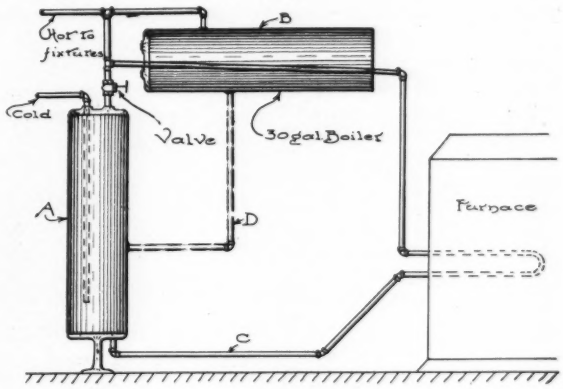


Fig. 2.

good results may be expected from connections shown in Fig. 2.

A very simple plan which should insure a very positive supply of hot water under all conditions, and without the use of a valve to check down currents is shown in Fig. 3. This can be applied to the location of the boilers on this job if cellar ceiling height is 7 feet or more.

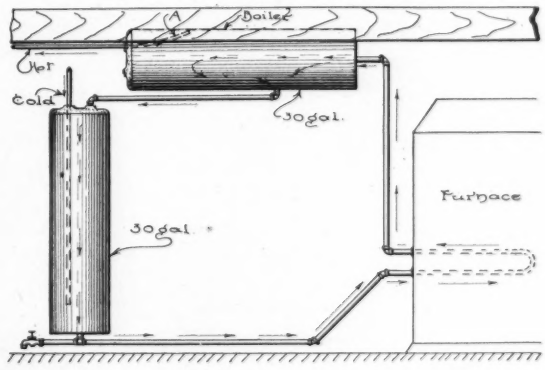


Fig. 3.

Hot water from coil flows to upper boiler only. Cold water supplies lower boiler only. A complete hot water circuit is formed from coil to upper boiler, thence to lower boiler, thence back to coil, all as shown by arrows. This is a positive simple circuit. It will heat upper boiler completely first. Then it heats lower boiler completely. The hottest water is always at top of upper boiler. The hot water distributing pipe has an inner tube, A, which draws from point of hottest water all the time. It also draws air automatically from this point which incidentally is the air collecting portion of the aforesaid circuit.

And as cold water is supplied only to bottom of lowest boiler, this boiler first becomes cold when hot water is drawn. Then upper boiler cools, beginning at bottom and working up. So it is evident that entire contents

of hot water in both boilers can be positively drawn off without being unduly mixed with cold incoming water.

ANOTHER SUGGESTION ABOUT SEDIMENT IN THE RANGE BOILER.

Editor "Domestic Engineering":—In the October 27th issue on page 132, Fig. 2 shows cold water inlet at the bottom side of boiler. I think this will stir up whatever sediment there will happen to be at bottom of boiler. Therefore dirty water will be drawn through hot water outlets.

Fig. 1 herewith is a drawing of how I am getting the best results in connecting up kitchen range with kitchen boiler and also connecting a gas heater to same boiler. A shows the cold water inlet to boiler through the bottom of boiler. B shows a 5-inch piece of brass pipe from boiler coupling to inside of boiler; the piece of brass pipe coming up through bottom of boiler. We are doing away with the ½-inch tube, which is put in through top of boiler, because in a short time it becomes clogged up and accumulates quite a bit of mud which settles at the bottom of boiler and helps to clog up pipe C. By placing B in bottom of boiler the boiler will wear out before

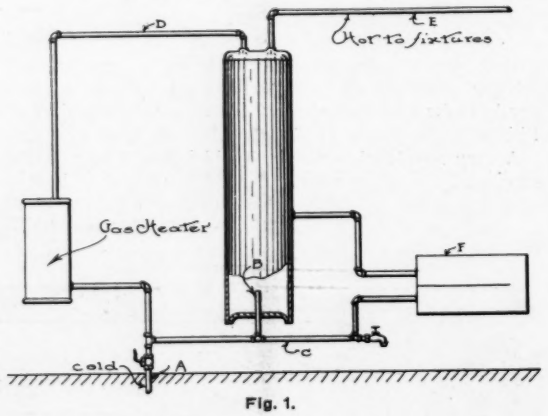


Fig. 1.

the sediment will be overflowing into B. Pipe D, which most plumbers use in cold water inlet to boiler, can therefore be used for gas heater, hot water flow to boiler.

Newark, N. J. G. S. S.

We do not think many plumbers will entirely approve all of correspondent's innovations, as shown in Fig. 1. Many may approve of the brass nipple, B, extending up into bottom of boiler about 5 inches, because it prevents sediment from entering into and choking pipe C.

A few may approve of the form of gas heater connections at top of boiler, even if it is an air pocket, because the force of the water rushing up A probably is great enough to drive the air bubbles from D into the boiler where they will be drawn off at fixtures by pipe E. But very few of those, who give the matter deeper consideration will approve of connecting the cold water pipe A as shown. We believe they will object to this plan, because of a dangerous element which will always be present when such a connection is made. We refer to the danger of cracking or bursting the water back, F.

Just follow our reasoning and see, if it is not possible for a plumber, or the owner, or tenant, to crack or burst the water back without knowing about it, till after the deed is done.

We will imagine a case, which is entirely possible. The house supply comes from city main. The house main in cellar has frozen during the night. The housewife comes down to the kitchen in the morning and whoops up a good fire for breakfast and to heat up the kitchen. But on opening a faucet at kitchen sink no water comes. However, faucet is left open which incidentally gives relief to the boiler and prevents its being ruptured by expansion of the water as it is being heated by the coal range.

In the mean time the husband goes down in the cellar, thaws the frozen pipe and discovers that it is split and leaks. He immediately shuts off the stop cock at main in cellar and goes up for breakfast, leaving the split pipe draining out in cellar.

He calls up the plumber, ordering him to come at once and put in a new piece of pipe in the cellar. Then he goes to business.

In the meantime the wife goes right ahead cooking with a brisk fire in the range, while the split pipe drains the water back and boiler empty for stop cock on pipe A, Fig. 1, was not closed. To close this stop cock would not shut off the leak from street main. The owner knew that, but he never thought it was necessary to shut it to hold water in boiler, so he left it open.

After water back was drained empty at the split pipe it soon became red hot, which is a most dangerous condition for a cast iron water back to be in.

By and by the plumber arrives, say about 11 o'clock. He gets the new piece of pipe in by 12, then turns on the cold water again. But the range fire is very hot, for the housewife was busy cooking dinner, while the plumber was repairing the pipe in the cellar. Consequently the water back was bright red when plumber turned on the cold water.

The pressure of street main drove water quickly up into water back and the result we must leave to the imagination of our practical readers.

We would like to have their opinions as to what would be the result also if the plumber, who installed the job, or the plumber, who repaired the frozen pipe in cellar, was to blame. Just what would happen and who was to blame, is an interesting practical question. We will allow space in our "Questions and Answers" department for the opinions of our practical readers regarding it.

And Has a Grand Pen.

Although Thomas Hardy, the famous English novelist, has lived so long in Dorsetshire, among the very scenes he has depicted graphically in his books, he is of such a retiring and modest disposition that his fame is unknown to a number of the quiet country folk who live in his vicinity.

There is an amusing story of an enthusiastic admirer who visited Dorsetshire and approached an old lady whom he found sitting outside her cottage door.

"Mr. Hardy lives near here, doesn't he?" he inquired.

"Which Mr. Hardy?" asked the old woman.

"Why, Mr. Thomas Hardy, who writes books," replied the astonished pilgrim.

"Oh, I know naught about him," said the woman, "but there be a Hardy near by that rears grand pigs!"—"The Youth's Companion."

Wife Furnished the Will.

Mrs. Jinks: "My husband was a confirmed smoker when I married him, but today he never smokes."

Mrs. Binks: "Good! To break off a life-time habit like that requires a strong will."

Mrs. Jinks: "Well, that's what I've got!"—Ideas.

Gratis

By WILLIAM ROBERT MARSHALL

HARRY WILLIAMS, the plumber from Santa Toledo, dropped into the vacant chair beside my desk, threw his hat on the floor at his feet and laughingly remarked: "Fine day for a wedding."

"What brings you to town in such a happy mood," I inquired.

"Seeking advice," he answered, still smiling.

"What do you mean?" I asked.

"Just this; I have found that every 'little one horse' printer thinks he is an expert on advertising. Every solicitor of advertising for newspapers, programs, motion picture shows, country fence posts, and every writer in the Trade Magazines *thinks* he is an advertising expert."

"Well?" I stalled.

"Fine Day for a Wedding."—What Brings You to Town in Such a Happy Mood?" I Inquired. "Seeking Advice," He Answered.

"Seeking advice about what?"

"In the first place, how much do you charge per hour?" he inquired mischievously.

"About weddings?"

"About advertising!" he answered.

"Oh," I laughed. "That's part of my job here, to try and help any man in the plumbing business—gratis."

"Nothing doing. I don't want any of that kind of advice. I tried it several times and it cost me money."

"Well I am here to tell you that they are a bunch of false alarms," he snapped.

"Harry, my boy," I almost shouted, "you and I can agree right there forever and forever. I wrote a little article for one of the newspapers the other day, in which I said that in my opinion a great amount of unnecessary grief in the world was caused by men who felt themselves called by God to do those things, for which they are entirely unfitted; and that goes double for the man who presumes to pass on advertis-

ing, who has had no *real* advertising training or *experience* to justify his presumption."

"Do you claim to be an expert?" Harry demanded abruptly.

"No, I don't claim to be an *expert*, but I have been writing advertising for twenty years, off and on, and am still at it, so I maintain I must know a little more about it than the man whose only experience is an exercise of his imagination.

"All right, that's the dope I got on you, How much for an hour of your time after 5 o'clock this evening. I want some advice and I am going to pay for it this time for a change, and see if I can get some 'dope' that I can use and that will get some results."

"All right, Harry, how does ten dollars suit you for an evening's conference?"

"Here's the ten!" Harry slid a gold piece across the desk. "Come over to the hotel and have dinner with me, and we will go to it."

Harry's difficulty was so common that the idea struck me that the readers of the "Domestic Engineering" might be interested to the extent of getting a *few* pointers out of the circumstance, and they are herewith set down—gratis:

"Look at that for a layout for a motion picture curtain adv. Tell me what's wrong with it?" Harry demanded as he handed me a sheet of paper on which was written:

WHEN IN DOUBT SEND FOR
Harry Williams, Expert Plumber.
Estimates Cheerfully Given, 125 East A Street,
Santa Toledo, Cal.

"When in doubt, about what?" I asked.

"Search me," Harry shrugged his shoulders. "When in doubt about whom to send for, I suppose."

"Supposing there isn't any *doubt* about who to send for, then what?"

"I am asking you," Harry laughingly replied.

"All right, you are going to place an advertisement on the motion picture theater curtain for what purpose? To advertise, or, let us say, to tell the people that Harry Williams is a plumber. What kind of a plumber? An expert plumber. All plumbers are experts, when they advertise. But let's see, why should I or any one for that matter, send for Harry Williams in particular?"

"That's the dope—why?" Harry agreed.

"Maybe we can find a reason," I suggested. "You just finished plumbing that fine new residence for Colonel Green in your town, didn't you?"

"You bet I did, and it's some humdinger of a job at that," Harry declared enthusiastically.

"Is the Colonel pleased with it?"

"Tickled to death!"

"All right, suppose you tell everybody in town about it. I am sure the Colonel will give you his permission," I suggested.

Harry blinked at me in perplexity.

"Furthermore, allow me to ask you, my shrinking violet, how many nice residence jobs have you done in your city during the past six months?"

Harry scratched his pate. "Oakley's—McCullough's—and Colonel Green's—three *real* jobs," he answered slowly.

"Proud of them?" I interrogated.

"They are the best jobs in town," he boasted.

"Pretty prominent people in your town?"

"The best there is."

"Everybody in town know about these jobs?" I quizzed.

"Say, who's earning that ten bucks?" he demanded banteringly.

"Do you think you could get these three people to permit you to use their names as references?"

"Bet your life!" he spouted. "Everyone of them told me I could refer to them any time I wished to."

"Good!" I exclaimed, as I handed him a slip of paper, upon which was written:

HARRY WILLIAMS
Plumbing Contractor, 125 East A. Street
References by Permission:
Colonel Green.
Oakley.
McCullough.
Santa Toledo National Bank.

"What's the idea?" Harry asked somewhat mystified.

"That's $10 worth. Fill in the correct initials and you have your copy for the motion picture curtain."

"That doesn't look like much of an advertisement," he offered disappointedly after a few moments' study of the paper.

"Let's analyze it and see, if it is what you want," I suggested. "In the first place, you want to advertise Harry Williams as being in the plumbing business. Very well, this advertisement states that to be *a fact*. The second and most important message to get over is, *what kind of a plumber is Harry Williams?* Am I right?"

"You-bet-yu."

"All right, you say everybody in town knows these people, and that they are a factor in your community. Don't you suppose that anybody, in need of a plumber, would take the combined word of three of your leading citizens for the fact that you are a good plumber?"

"This doesn't say anything about me being a good plumber." Harry interjected.

"You bet your life it does," I answered. "Colonel Green, Mr. Oakley, Mr. McCullough and your bank are not allowing anybody but a responsible contractor to use their names, are they? You know they *are not*, and the public know they *are not*, so it stands out as clear and prominent as—as Washington's monument. Get me?"

"I guess so," Harry admitted half convinced.

"According to my way of looking at it, you are answering all questions that might be asked regarding Harry Williams by that advertisement."

"Are you honest? Three prominent men and your bank say you are.

"Are you capable? Three prominent men and your bank say you are.

"Who are you? Harry Williams.

"What's your business? Plumbing.

"Where are you located? 125 East A Street.

"What more do you want people to know about you? That your hair is red and your eyes are blue?"

"I get you, Chief, and say, couldn't I add a few more names to that list? Old man Cobb, the Lemon King thinks I am the candy, did $1,000 worth of work for him about nine months ago, and Mrs. Baldwin's job, you remember, was no slouch of a job and—"

"The more the merrier. Got your money's worth?"

"Bet yer life!"

Bellow Falls, Vt.—Mrs. George B. Allbee, widow of the former owner of the plumbing business of George B. Allbee Co., has sold her interest in the business to Thomas J. Fitzgerald and Morris G. McAulisse, the other partners. They will continue the business under the old firm name.

Central Falls, R. I.—The Berard & Pronix Co., Inc., has been organized to engage in a general plumbing and heating business. The concern is capitalized at $10,000 and has been incorporated under the Rhode Island laws by Isail Berard, Henri Prouix and Arthur Berard, all of Central Falls.

Short Talks

By W. W. HUGHES

Our Greatest Need.

RAMBLING around the country on little week-end trips during the summer months broadens a fellow's vision and makes him wish with all his might that either the week ends might come closer together or the summer extend itself a little into spring and fall.

On a farm in a prosperous southern Minnesota county, I had the pleasure of meeting their county agent, and it was a rare pleasure, too.

Of course, like many another city chap, I read the "Country Gentleman" and in so doing have become familiar with the plans and work of the many county agents, who are now on the job.

To those not familiar with their work, it might be well to state that county agents are men employed by the residents of certain counties for the purpose of disseminating useful information.

In some cases they are paid by the county government, but as a rule, they are paid from subscriptions made by farmers, business houses, civic bodies and interested individuals.

Almost without exception, the county agents are graduates of agricultural universities, which education has been preceded by actual farm experience.

The county agents visit the various farms in their counties; they show the farmer better methods; they advise him as to markets; they organize pig clubs for the boys, colt and calf clubs for the older boys, chicken clubs for the girls. They induce the farmers to invest in better stock; in many cases they get them to co-operate so that the burden will not fall too heavy on any individual. They urge good roads. Community meetings are boomed, and many of them have engineered auto trips, in some cases taking car after car of interested city folks out through the country and showing them the best farms and the product of those farms, and in other cases they take farmers, who have been raising grain almost exclusively, to stock farms, where the products of the fields leave the farms on their own four feet.

On the other hand, we find that certain organizations of business men have their agents. Sometimes they are known as executive clerks or secretaries, but of late they are known as field workers. Field workers render direct personal service to association members.

Information gathered at trade conventions has its own value, and we must have meetings. We must rub elbows with the other fellow and find out his reasons for doing things as he does them; but the time available at conventions is limited, and some means must be provided for a more thorough dissemination of knowledge.

Nor can we all attend all the meetings that we would like to attend. Circumstances often render it impossible.

Then, too, we have our trade papers and they are justly entitled to a great deal of credit for the good that they are doing, but like the organization, they too are handicapped in this that frequently the fellows that need the trade papers the most do not find time to read them.

Which brings us right smack up to the field worker.

The plumbing and heating business needs more field workers. It is not at all likely that we need one for every county, although there are many counties that could use several to advantage.

There is one real way to render service to the trade at large and that is by means of personal visits. It will require men, and money, but every effort and every cent will bring back ample returns on the investment.

There are many men in the plumbing and heating business, who do not belong to trade organizations; there are many who do belong, but who never attend a meeting; there are some who attend an occasional meeting; there are some who attend the meeting and keep all their thoughts locked up until after meeting. They cannot find their tongues during the meeting, but after it is over, they can relate more ways of putting the business on its feet than there are Fords. And there are some few of us who talk too much.

But the only way to get down to brass tracks is to do just exactly as the county agents are doing: Visit the farmer on his own farm; look into the barns and pig pens, chicken coops and hay mows, and corn cribs; look at the horses and pigs and cattle and sheep; look at the grain growing in the field or stored in the granary; examine the machinery and as many of the hundred and one things about the farm as possible; and then with a first hand knowledge of conditions as they are, the county agent can deliver his prescriptions, and they will find ready takers.

We must reach the men in the plumbing and heating business just as the county agents are reaching the farmers, that is the only solution of the problem that confronts us.

The wholesale dealers in plumbing and heating supplies tell me that their best salesmen are ex-master plumbers, and if our ex-master plumbers are good men for the jobbers they could not help but be good men for the plumbers of today and tomorrow.

Call them what you will, executive secretaries, field men, county agents or anything else, we need them and need them badly. They should be ex-master plumbers. The kind of fellows that can come into my shop and exchange a few ideas with me. My way of handling work may seem good to me; in fact, it may be worth while passing along to the other fellow; or the field man might give me a few pointers on handling work that will mean black figures on the ledger instead of red ones. The only way to get and give this information properly is by word of mouth. Let us profit by the experience of the farmer.

A certain lawyer was greatly addicted to the habit of lecturing his clerks. The office boy, however, got more than an equal share. One day the lawyer overheard a conversation between his office boy and another boy employed in an office on the same floor, which revealed to the lawyer how much his admonishing words were appreciated.

"Watcher wages?" asked the boy in the other office.

"Ten thousand dollars a year," was the reply.

"I should worry," drawled the other.

"Honest, I do," reiterated the lawyer's boy.

"I get five dollars a week cash and the rest in legal advice."—"The Water Boy."

THE LARGEST CANTONMENT.

THE construction of the cantonments for the housing and training of the new National Army has been accomplished with remarkable speed and efficiency. Within six months, the cantonments, equipped with plumbing and heating facilities, have sprung up in all parts of the country.

The biggest of these cantonments is located at American Lake, about eighteen miles south of Tacoma, in the state of Washington. We refer to Camp Lewis, where some of the men of the plumbing and heating trade on the Pacific Coast are undergoing military training, either as officers or privates.

This camp is not only the largest of all the cantonments, but the record of its construction is unique in other respects. It was completed within eight weeks from the time the construction chart was finally approved by the government on July 10th. It was built under government contract by the Hurley-Mason Co., a concern with headquarters in Tacoma and of wide experience in the Northwest field. Naturally more men were employed in construction than at any other cantonment, the pay roll starting with 5,000 men, and in the latter stages numbering more than 10,000 men.

The whole work has been under the direction of Major David Stone, United States Army, constructing quartermaster. Improvements to the site, road building, installation of the water system and sewer construction, called for expenditures in excess of $1,000,000. The first estimates on building construction gave an approximate total cost of $4,000,000, but additional work, such as the 200 remount stables, has been required from time to time, so that the final figures of cost will exceed the first estimate.

Practically a $5,000,000 job, completed within eight weeks, turned over to the War Department, ready in every respect, for the housing and care of 50,000 troops; no disputes, no trouble, no sickness—just good organization and hard work.

According to "American Industries," Camp Lewis occupies a military reservation of 70,000 acres.

The cantonment includes four brigades of infantry, one of heavy artillery, engineers' regiments, supply train, ammunition train, signal corps, headquarters' buildings, hospital corps and remount stables.

The main cantonment is built in the form of a U, with division headquarters' buildings at the base, and the other structures extending up from the sides.

The service railroad, running from one tip of the U, around the base, and on to the other tip, is five miles in length.

There are 1,148 substantial frame buildings in the U.

Near the base of the U, in a pretty grove, stands the hospital group of fifty-eight buildings.

One thousand, four hundred and six buildings in all have been erected.

The permanent water system, with unlimited supply and capacious reservoirs, has twenty-five miles of mains.

The permanent sewage system, extending to deep water in Puget Sound, has twenty-four miles of sewer pipe.

The cantonment, its streets and buildings, are well lighted by electricity, the current supplied by the Puget Sound Traction, Light & Power Co., and distributed throughout the camp on government poles.

For rapid and efficient construction, the Pacific Northwest claims the record for efficiency, and can well be proud of the work accomplished.

On the whole the construction of the cantonments throughout the United States has been characterized by the American spirit of hard work.

Upon a recent visit to Camp Lewis, a plumbing and heating contractor of Tacoma, who is now in the engineering corps of the new army and in training at the camp, writes that the buildings from a construction standpoint are worthy of great praise.

"Uncle Sam has set the pace for speed and efficiency in cantonment building," he writes. "The world can no longer look upon this nation as unprepared in the face of this vast accomplishment. Our preparedness is daily growing more effectual, and it is safe to say that by next summer the American armies will be menacing the hordes of Kaiserdom in a manner that will strike terror to the haughty and stubborn Prussian leaders. There is no doubt, that Germany is playing her last cards, particularly in the Italian campaign, which may after all prove a bitter disappointment to her vain hopes. She has belittled the power of the United States as a military factor, She will doubtless discover that her snap judgment in the case of the U. S. A., was an extremely silly bit of reasoning. She will sooner or later rue the day that she courted the enmity of the American nation. She will learn that Americans are not quitters."

IN UNCLE SAM'S SERVICE.

C. G. Kelleher, fan engineer of the Consolidated Engineering Co., Chicago, has entered the new National Army and is now in training at Camp Grant, Rockford, Ill. Mr. Kelleher, who is a member of the Illinois Chapter of the American Society of Heating and Ventilating Engineers, has the best wishes of his friends in the Society.

J. F. Bertaux, of the Chicago office of the J. L. Mott Iron Works, New York City, who enlisted in the navy some time ago, is now stationed at the Great Lakes Naval Training Station, Waukegan, Ill. He is expecting to be assigned to active duty on the high seas as a yeoman at any time. A considerable number of those connected with the eastern branches of the company have given their services to the nation.

W. V. Mallon, formerly manager of the Kansas City (Mo.) office of the Peerless Selling Co., Evansville, Ind.,

who was recently chosen in the selective draft, is now in training at the United States Marine Camp at Charleston, S. C.

T. H. McGee, a master plumber of Eighteenth and Brooklyn Streets, Kansas City, Mo., has recently been commissioned as a captain in the new National Army. He was a lieutenant in Battery B, a local military unit which saw service on the Mexican border last summer. His promotion occurred when the unit was absorbed by the regular army. Captain McGee is at present stationed at Camp Doniphan, Fort Sill, Okla.

John B. Thomson, architect, and Norman B. Thomson, a senior Penn State College student, both sons of T. N. Thomson, sanitary engineer, Scranton, Pa., have enlisted in the Aviation Corps and have started in training at Fort Sam Houston, Texas.

Corporal C. C. Choate, formerly assistant manager of the Chicago office of the Wheeling Steel & Iron Co., of Wheeling, W. Va., who is attached to the Field Artillery of the "Rainbow Division," is now encamped in France, according to the belief of his friends. Corporal L. J. Bagnall, formerly of the United States Radiator Corporation, of Detroit, Mich., is with him.

Captain Charles L. Collette, of the Kewanee Boiler Co., of Kewanee, Ill., was awarded special honors as an expert marksman in shooting practice at Camp Grant, Rockford, Ill., recently. According to J. P. Dugger, manager of the Chicago office of the Kewanee Boiler Co., his marksmanship was perfect.

Captain Robert H. Smith, of the 131st Infantry, is at present stationed at Camp Logan, Houston, Texas. According to word received from the camp, the captain is now leading the strenuous life, directing trench building and drilling troops. Before entering the army he conducted a plumbing business at 328 Fifty-eighth Street, Chicago. He is a member of the Chicago Master Plumbers' Association.

Lieutenant-Commander G. C. Hall.

G. C. Hall, treasurer of the McRae & Roberts Co., of Detroit, Mich., and Lieutenant-Commander and Pay Master of the Michigan Naval Militia, is now serving the U. S. A., somewhere on the Atlantic Coast. The accompanying picture of him is an excellent likeness taken just before he went into active service. As one of Uncle Sam's picked officers he will acquit himself with credit, and when he returns from his adventures in the service, his friends in the trade will be interested to hear of his experiences in the Navy.

A. W. Hills, formerly western representative of the Haydenville Co., of Haydenville, Mass., with office at Chicago, who entered the service of Uncle Sam on the high seas, has been promoted to the rank of ensign in the merchant marine. After three months' service as an able seaman in the scout patrol division of the navy, he was notified of his advance to new duties. He was recently granted a furlough and took occasion to visit Chicago. He departed from the city last week, bound for "somewhere on the high seas." As an ensign Mr. Hills will have supreme command of guns and gunners on board an armed merchant vessel. Ensign Hills was looking the picture of health after his months of life on the "bounding wave."

Major Edward Bittel, formerly engaged in the plumbing business in Chicago, and at one time a member of the Chicago Master Plumbers' Association, has been highly complimented by Captain Henri Leonard Richelieu, French instructor, who arrived at Camp Logan, Houston, Texas, last week. Major Bittel has engineered the construction of five miles of trenches, which were completed recently near the camp. These trenches have all the appearance of a real chain of trenches. The major is attached to the 131st Infantry.

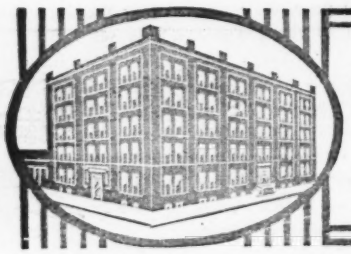
Lieutenant J. M. Doyle.

Lieutenant James Madison Doyle, son of Wm. H. Doyle, of Philadelphia, past-president of the National Association of Master Plumbers, who graduated from Annapolis in 1910, has during the past few years seen service in China and Japan, rendering an excellent account of himself as an officer. He is now serving the cause of world democracy on board the Mount Vernon, formerly known as Kronprinzess Cecelie, ranking as first lieutenant. According to his friends in the Quaker City, he will be in line for promotion to lieutenant-commander in December, and this in spite of his youth. He is only 31 years old. That he is deserving of this honor, there can be no question, as it is said that he has proved himself a model officer, highly efficient in the discharge of his duties.

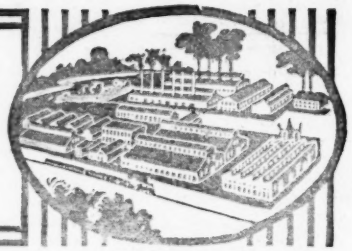
The New York office of Walworth Mfg. Co., of Boston, has three men in the fighting service of the nation. When the call came, Jack Whalen, of the stock room, and E. L. Beard, of the office force, joined the navy and aviation service, respectively. The third man is J. L. Ryan, of the office staff, who is stationed at Camp Upton, Long Island.

Crane Co., of Chicago, has recently unfurled its large service flag to the breezes of Lake Michigan. There are 614 stars in the flag, which represent the company's roster of honor, the number of its men who are in the military service of the United States and its allies.

"What Doth It Profit A Man?" is the phrase which strikes the eye in the front window of the Crane Co.'s Building, on Michigan Avenue, Chicago. Those who pause to read the poster upon which this is printed, will read several patriotic sentiments, some of which are as follows: "Germany is working, by every scheme that ingenuity can devise and money can put into operation, to make American workingmen traitors to their country in its hour of need. What doth it profit a man—if he sends his sons to the battlefields—and after he gets them there he betrays them to the enemy by stopping industrial home work, without which they can neither win nor escape? The course of nations—the lives of millions are changed by very small events. Had the Monitor not been ready for the Merrimac, exactly when she was, the Union fleet would have been rendered useless, and the Civil War might have had a different ending. Had someone then succeeded in delaying transportation, while the Monitor was under construction, what would have become of the whole Union fleet of wooden ships, which was blockading the southern ports?"



Among the Wholesalers and Manufacturers



J. D. JOHNSON CO. COMPLETES LARGE WAREHOUSE.

The J. D. Johnson Co., jobbers of plumbing and heating supplies in Philadelphia, have just finished a five-story warehouse on Allegheny Avenue in that city.

WILL SOON HAVE LARGE STORAGE BUILDING.

Braman, Dow & Co., of Boston, Mass., jobbers in plumbing and heating supplies, will occupy a storage building soon to be erected at 578 Rutherford Avenue in the Charlestown district, by the Boston & Main R. R.

HUMPHREY CO.'S PHILADELPHIA OFFICE IN NEW QUARTERS.

The Humphrey Co., of Kalamazoo, Mich., has moved its offices in Philadelphia from 1318 Market Street to 217 North Fifteenth Street. The new location gives the company display room, offices and warehouse all under one roof. The branch is in charge of John M. Sewell, manager of the Pennsylvania District.

TO MANUFACTURE AND SELL WATER FILTERS.

Louis Wheelwright has just resigned as New York sales manager of the Roberts Filter Co., of Darby, Pa., and will hereafter manufacture a water filter of his own invention and act as sales agent in the New York district for the New York Continental Jewell Filtration Co., of New York City. Mr. Wheelwright has been connected with the filter trade since 1896.

MANUFACTURERS OF ENAMELED WARE IN CONFERENCE AT PITTSBURGH, PA.

Manufacturers of Sanitary Enameled Ware held a conference at the William Penn Hotel, Pittsburgh, Pa., on Thursday, November 22nd. Various matters of business import were discussed, and it was announced that there would be no immediate change in prices, the manufacturers guaranteeing the present prices on enameled ware for the next sixty days on orders shipped to jobbers' stocks.

KANSAS CITY CHAPTER OF A. S. H. & V. E. HONORS H. W. BOOTH

The Kansas City Chapter of the American Society of Heating and Ventilating Engineers gave a luncheon in the City Club Rooms at Kansas City, Mo., on Monday, November 19th, in honor of H. W. Booth, manager of the Kansas City branch of the United States Radiator Corporation, who is soon to leave for Chicago to be manager of the concern's branch in that city. Among the members present at the luncheon were: B. Natkin, F. A. DeBoos, R. F. Taylor, N. W. Downes, L. A. Stephenson, Walter E. Gillham, B. W. Hillman, Robert J. Laurie, F. A. Griffin, Jr., W. N. McIntyre, F. J. McMorran and John H. Kitchen.

MEETING NATIONAL NEEDS.

About 80 per cent of the government's war needs now is being met by American manufacturers, and reports to the War Industries Board indicate that by the first of next year the factories will be able to supply all requirements of the government.

In many cases factories producing materials not national necessities have been turned into essential war work, and it is pointed out that in no case where such a change has been asked has the manufacturer declined to "do his bit." The Council of National Defense purposes to call for such changes only in cases where the non-essential work is hindering necessary war work by material or labor needed for supplies for the government.

DEMAND FOR AMERICAN BATHTUBS IN DOMINICAN REPUBLIC.

There is an increasing demand for modern plumbing in Santo Domingo as well as in the other chief towns of Dominican Republic.

The lack of water works and a sewerage system has no doubt retarded the general installation of modern plumbing in the capital city, and it has been only recently that well equipped bathrooms and toilets have been installed in the more pretentious of the older residences and business blocks.

Since the American occupation, however, and the consequent growth of the American colony, there has been a great demand for residences with modern conveniences, and consequently in nearly all the new houses constructed, and those in process of construction, a convenient bathroom is considered a necessity. To keep abreast of the time, toilets and baths are also being installed in many of the old buildings.

All plumbing supplies are imported from the United States.

MANUFACTURERS OF PLUMBING GOODS AT HOTEL MEN'S EXPOSITION.

The second National Hotel Men's Exposition, held at Grand Central Palace, New York City, November 12th to 17th, attracted thousands of visitors, interested in hotel construction and equipment, from all parts of the country.

A feature booth, which attracted much attention in the Hotel Commodore section, was a model bath room completely equipped, as it will appear in the various apartments of the New Commodore Hotel in New York. This was conducted under the auspices of the following concerns: The Thomas Maddock's Sons & Co., of Trenton, N. J.:

Kohler Co., of Kohler, Wis.; Murray & Sorenson Co., of New York, and W. G. Cornell Co., of New York.

The Hughes-Evans Co., Inc., of New York, exhibited its bathroom accessories.

The Standard Sanitary Manufacturing Co., of Pittsburgh, showed porcelain-enameled kitchen equipment.

The Bashlin Co., of Warren, O., featured self-closing work.

A. P. W. Paper Co., of Albany, N. Y., exhibited toilet paper holders.

Other exhibitors were Golco Sanitary System Co., Inc., of Philadelphia; H. W. Johns-Manville Co., of New York, and the Fairfax Co., of New York.

PRICE CONTROL AND DISTRIBUTION.

Waddill Catchings, chairman of Committee on Co-operation with the Council of National Defense, has recently issued the following bulletin on "Price Control and Distribution," which contains much information of interest to the plumbing and heating trade:

The recommendations of business men through the Chamber of Commerce of the United States that the government during the war control prices, production and distribution under certain circumstances, make it desirable to consider the nature and extent of what has already been done by the government in this direction.

Purposes of Control.

Control of prices by the government may be for the following purposes:

1.—To enable the government or the public, or both, to purchase at prices below those established by market conditions.

2.—To substitute for the ordinary method of distribution by price a method of distribution of product on a basis of the country's requirements in connection with the prosecution of the war.

3.—To prevent the making of large profits out of the war and thereby, among other things, eliminate a cause of great discontent on the part of labor.

Prices Dealt With.

Our government has fixed prices on copper, steel, coal, coke and pig iron. In these cases, the prices to the public and to the Allies have been the same as those to our government, and the prices have been substantially below those prevailing in the market at the time. Therefore, the control of these prices by the government has accomplished the first of the three purposes indicated above.

In the next place, wherever prices have been fixed by the government consideration has been given to the necessity of stimulating production and prices have been established at a sufficiently high level to accomplish this purpose. This has, of course, produced high prices and has in a large number of cases resulted in large profits—far beyond those earned in normal times. The fixing of prices has not been accompanied by an arrangement under which excess earnings are paid into the public treasury—some such arrangement as that which has been adopted in England, in connection with the "controlled" plants. In removing the discontent of labor at high war profits, taxation, because of its remote application, is unsatisfactory even when directed at war profits, and such a general taxation measure as that recently passed by Congress, is less effective.

Elements in Situation.

Therefore, as large profits are being made even in industries where the government has fixed prices, the government has not yet been able to enter upon the accomplishment of the third of the purpose above set forth.

It is not unnatural that the government should proceed slowly and hesitatingly with such unprecedented action as the control of prices and distribution. The very magnitude of the undertaking restrains the vigor and energy which would characterize the effort to solve a less difficult problem. In any event, however, success is only relative and in the early stages may be lost sight of entirely because of unavoidable confusion.

This makes it all the more important to distinguish between the results of partial effort which does not even endeavor to secure full results and those of thorough going, well-developed effort.

Difficulties to be Avoided.

In some respects the first attempts of the government at price control have been such that most business men will regard disappointment or failure as inevitable. To business men any fixing of prices to a vast multitude of users is an undertaking of almost insurmountable difficulty and absolutely hopeless if not accompanied by some method of distribution.

Where no mechanism is developed to take the place of distribution by price, and nevertheless an effort is made to control retail prices of a product in urgent demand, there will be of necessity wholesale attempts at evasion. The man whose house is cold endeavors to induce a dealer to secure coal for him by making gifts (often in the form of wagers) or by purchasing articles of no value. Similar conditions have produced the same experience for many hundreds of years.

General Basis for Prices.

There has not been developed as yet a clear policy with regard to securing the assistance of business men in connection with the control of prices. In some cases the government has called upon those interested in a business to participate in the actual fixing of the prices. This has resulted in a fixing of prices by negotiation—which is clearly harmful. In the judgment of this committee, men elected by an industry to represent it should be called upon by the government for full information which would be helpful in fixing prices, but the actual determination of the price should be a semi-judicial function.

This means that wherever prices are determined by the government it is essential that such prices should be arrived at according to some general plan and upon a definitely declared basis. Such general principles should be followed so far as possible wherever the government acts to control prices and would serve as a yard stick or standard between different industries.

In other cases the government has not consulted business men, but has conducted independent investigations and announced prices without giving any information as to the basis on which such prices were reached. This necessarily creates antagonism on the part of business men who are unaccustomed to autocratic control, and prevents the co-operative response which might be expected from business men if they had a clear understanding of what was being done.

Actual Conditions.

Knowledge of actual conditions existing in business in its intricate ramifications can be acquired only by years of intimate contact. In the judgment of business men it is essential to success in government control of prices and distribution to establish a basis upon which this knowledge and information of business men can be at the service of the government under such circumstances as

not to be influenced by selfishness or the need of self-protection.

Success in price control is to be expected only where made in connection with distribution and when the attempt is made as near as possible to the source of supply; also when advantage is taken of such helpful aids as the control of railway transportation; and furthermore when the government has the assistance of business men of knowledge and experience, furnished on a disinterested basis and under such circumstances as to bring about co-operation in the industries which such men represent.

Personal Mention

J. R. Dulany, manager of the Chamberlain Co., of Pittsburgh, Pa., was in Toronto this week.

Philip J. Faherty, treasurer of Lambertville Pottery Co., of Lambertville, N. J., visited the New York trade last week.

Frank R. Noss, assistant sales manager of the Royal Brass Mfg. Co., of Cleveland, O., was in Chicago last week.

Alex. B. Pierce, vice-president of the N. O. Nelson Manufacturing Co., St. Louis, Mo., was in San Francisco last week.

Lou Brennan, president of the Victor Brass Manufacturing Co., Cleveland, O., called on some of his friends in the Chicago trade this week.

Edward Hammond, of Trenton, N. J., vice-president of the J. L Mott Iron Works, of New York City, visited the company's Chicago office this week.

S. W. Howard, sales manager of the boiler department of the Toronto branch of Lord & Burnham Co., Ltd., St. Catherines, Ont., was in Chicago this week and called on some of his friends in the trade. .

C. M. Woolley, president of the American Radiator Co., of Chicago, accompanied by C. K. Foster, vice-president, and D. M. Forgan, assistant to the general manager of the same concern, left last week for Washington, D. C.

W. F. Trenary, Jr., has been appointed southern representative for the Harrison Safety Boiler Works, of Philadelphia, with headquarters at 419 Brown-Marx Building, Birmingham, Ala.

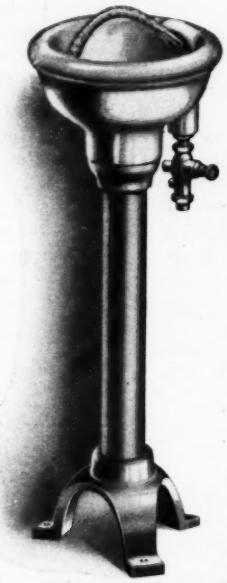
BRADFORD'S COMBINATION PRICE BOOK.

William A. Bradford, of Quincy, Mass., past president of the Massachusetts Master Plumbers' Association, has recently issued, in loose-leaf form, a Price Book arranged for the plumbing, heating and gas fitting trades. This book was compiled to save the plumber and steam fitter time in figuring the net cost and resale price on plumbing and heating materials. An Eastern master plumber, who is using it in his business, says it is the finest thing he has seen in a long time for the good of the plumbing trade.

MILITARY AND BUSINESS MAP OF U. S. A.

The Standard Sanitary Mfg. Co., of Pittsburgh, Pa., has just issued an interesting military map of the United States, showing the location of the armed forces of the country, including the camps and forts of the Regular Army and Navy, the National Army, the National Guard, Naval Training Stations, Aero Training Stations, etc., as well as the location of "Standard" show rooms and service stations, warehouses, factories and branch offices. The size of the map is 32 by 19 inches. It will no doubt prove of great interest to nearly everybody in the trade, particularly those who have friends or relatives in the service of Uncle Sam. On the reverse side of the map is published a condensed history of the Standard Sanitary Mfg. Co., with pictures of its plants and its officers.

THE DOUGLAS PUBLIC DRINKING FOUNTAIN



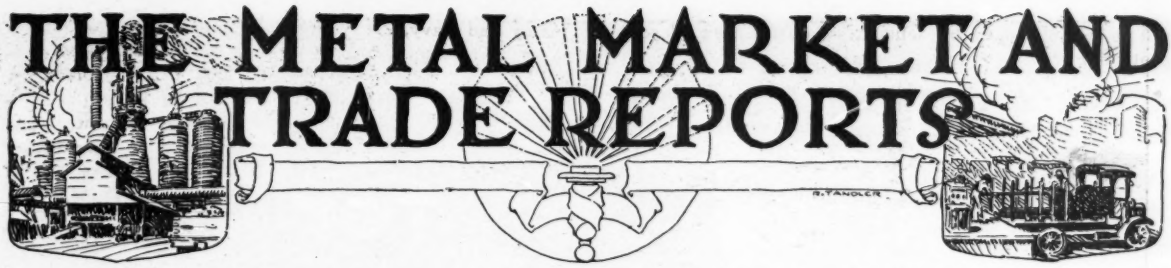
The Douglas Co., of Cincinnati, O., has just issued an attractive catalogue illustrating and describing in minute detail the Douglas public drinking fountain, which is constructed in such a manner that the mouth of a person cannot come in contact with the spout, owing to protecting cowl being integral, thus making it germ proof. This fountain can be set on an upright standard, screwed to waste pipe or hung from wall by using an elbow connection. It is said to make a good fountain for schools and public comfort stations on account of its simplicity of installation. The china cup forming strainer and trap is of such design that it cannot be removed by hand. It is also made in the form of a china pedestal fountain for hotels, theaters, state and municipal buildings, etc.

BORDEN CO.'S NEW CATALOGUE.

The Borden Co., of Warren, O., has just issued its 1918 catalogue of "Beaver" Easy Working Die Stocks and Square End Pipe Cutters. Its attractive appearance indicates that no expense has been spared in securing the services of high grade artists and printers. The

book is printed in two colors on high grade paper and illustrates in an artistic manner the products of the Borden Co. Several new tools are shown for the first time in this catalogue. A view of the book when closed and open is shown herewith.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

The steel industry is working at the highest possible tension apparently, as the requirements of the government keep increasing to such an extent that a large cutting down of all commodities not required directly or indirectly for national purposes is bound to result. Extraordinary organization and co-ordination are evidenced, however, by the fact that a price readjustment was possible during these turbulent times. But the new prices are not likely to make much difference so far as outside private trade is concerned, for the reason that there will be but little steel available for other than government purposes. In order to assure the nation all the steel it requires, there is an acknowledged necessity for substantially limiting certain manufactured products, prominent among which is automobiles for pleasure purposes. A genuine shortage of coal and coke is one important hindrance to freer manufacture of steel for government purposes, and in order to conserve the supplies of these to the greatest extent possible, the Fuel Administration and the Priority Board have in mind a proposal to limit the supply to a number of so-called non-essentials. Congestion of freight is causing the railroads to take issue with the government because of a lack of rolling stock. They ask for help in way of embargoes in order that the more essential commodities be moved first. The Railroads War Board has therefore submitted a list of 525 commodities to the government authorities, which it claims might be subjected to more or less extended freight limitations. On this list 11 articles designated as being sufficiently non-essential to warrant a limiting of fuel supply. Pleasure automobiles come first on the list. Two ways are suggested to conserve fuel: First, by restricting transportation to non-essential industries, and, second, to restrict the manufacture of the same non-essentials. In either case not only is a saving of fuel effected, but a larger percentage of cars, needed for national work, would be released. The iron situation is far from satisfactory and experts are asking themselves how it is going to end. The shortage of iron has grown more pronounced, and the causes which have led to the scarcity are in no way modified as yet. Furnaces are slow in making deliveries upon contracts, and in some cases consumers have been forced to seek what they could find in the open market. This shifts distribution without adding to the actual quantity available for consumption. Makers of steel, who have relied upon their own resources for iron, were in no better position than the independent furnaces. The same causes left them short of iron they made for themselves, and they had to seek outside supply. But the furnaces were in no position to meet the extra demand which came at so inopportune a time. Orders for round lots of Bessemer and basic iron for deliveries, extending well over 1918, have been booked but from present appearances are not promising, though it is not impossible that a change for the better may set in. Much depends on the supply of coke, which in turn is dependent upon coal, transportation and labor.

The price of pig iron as established by the government is now $33 a ton for basic and No. 2 foundry. All prices are based upon delivery f. o. b. cars at respective furnaces, North, South, East and West, and will be effective until Jan. 1st.

Copper.

The copper situation is being straightened gradually partly by government authority and partly by dealers with no authority but their own to grant. Recognizing the position of the middleman and his importance as a necessary factor in the trade, the government and the Copper Producers' Committee, as already announced, have agreed that the jobbers shall have a 5 per cent commission or profit on sales, which will enable them to buy copper at 23½ cents and sell small lots at 24.67 cents a pound.

Tin.

The situation in the tin trade has never been so trying from a trader's standpoint and so interesting from an outsider's viewpoint. The New York market has been cleared of all spot Straits and Banka within the past fortnight. The uncertainty of obtaining permits for shipment from the London Committee, and the possibility of having large sums of money tied up in property in Singapore or London without any immediate hope of being able to secure this property for use here, have held back all buying for shipment for some time, and in the meanwhile the spot market for Straits has been effectually mopped up. Trading has been confined to Chinese, which sold at 67 cents at the end of the week after selling as high as 68½ cents. The most important event of the week was the official announcement that the duty of distributing tin in this country during the war had been assigned by the government to the American Iron and Steel Institute and would be under the direction of the sub-committee on tin.

Lead.

A good demand for lead developed lately but trading for the most part was confined to dealers, and consumers were not much in evidence. The market was well sustained, however, and may for the present be considered firm at quotations. The principal producers continue to quote New York delivery at 6¼ cents and East St. Louis at 6.17½ cents, but these prices do not represent the figure at which lead can be bought as none is sold at the quotations. They merely apply to the contract delivery price of the day, and the outside market in New York quotes lead at 6⅜ cents to 6⅝ cents.

Spelter.

More inquiry was noticeable for spelter last week. Some business resulted, and the tone of the market was firmer. Prices did not change however, and in New York spelter in all positions up to and including December was quoted at 8 to 8¼ cents.

Old Metals.

There is no improvement and very little change in the old metal situation.

-there's nothing like C
for all Hou

SANITATION – ECONOMY – PERMANENT SERVICE
IN THE BUILDING
UNDER THE GROUND

Specifications and literature will be mailed upon request by any or all of the following independent and competing makers of Cast Iron **Soil Pipe** and **Fittings**

Reading Foundry & Supply Co. - - - - - - - - - Reading, Pa.
Salem Brass & Iron Mfg. Co., Salem, N. J.
Sanitary Co. of America - Linfield, Pa.
Somerville Iron Works - New York, N. Y.
Standard Foundry Co. - Anniston, Ala.
Superior Mfg. Co. - - Bessemer, Ala.
Union Foundry Co. - - Anniston, Ala.
Weiskittel & Son Co., A. - Baltimore, Md.
Wetter Mfg. Co., H. - Memphis, Tenn.
Abendroth Brothers - Port Chester, N. Y.
Alabama Pipe & Foundry Co. - - - - - - - - - Anniston, Ala.
American Foundry & Pipe Co. - - - - - - - - - Penns Sta., Pa.
Anniston Foundry Co. - Anniston, Ala.
Bessemer Soil Pipe Co. - Bessemer, Ala.
Campbell Mfg. Co. - - Gadsden, Ala.
Casey-Hedges Co., The, Chattanooga, Tenn.
Central Foundry Co. - New York, N. Y.
Charlotte Pipe & Foundry Co. - - - - - - - - - Charlotte, N. C.
Coosa Pipe & Foundry Co. - - - - - - - - - Birmingham, Ala.
Crown Pipe & Foundry Co., Jackson, Ohio
Gadsden Pipe Co. - - Gadsden, Ala.
Haines, Jones & Cadbury Co. - - - - - - - - - Philadelphia, Pa.
Johnson Co., J. D. - New York, N. Y.
Krupp Foundry Co. - - Lansdale, Pa.
Medina Foundry Co. - - Medina, N. Y.
National Foundry Co. of N. Y., Inc. - - - - - - - - - Brooklyn, N. Y.
National Pipe & Foundry Co., Attalla, Ala.

ISIDOR POLLACK Pres
JOHN C O'NEILL. Secy & Treas

POLLACK & O'NEILL, Inc
CONTRACTING PLUMBERS
AND
SANITARY ENGINEERS
3200 BROADWAY

STEAM HEATING
HOT WATER HEATING

ESTIMATES DO NOT INCLUDE ROCK EXCAVATING UNDER ANY CONDITION

NEW YORK, June 28, 1917.

Central Foundry Co.,
90 West Street,
City.

Dear Sirs:-

At the present time, we are completely overhauling the building #799 Park Av., City, which was constructed some twenty six (26) years ago.

Our contract with the owners, permits us to use all pipe etc. found in good condition.

The cast iron of this building is in such good shape, we will use same over again. After explaining these facts to your Mr. W.A.Crotty, he advised us to write to you giving you the information, knowing it might be of interest to you to know about same.

If you care to visit the building and get samples of the pipe we will be glad to arrange for your representati to meet our man.

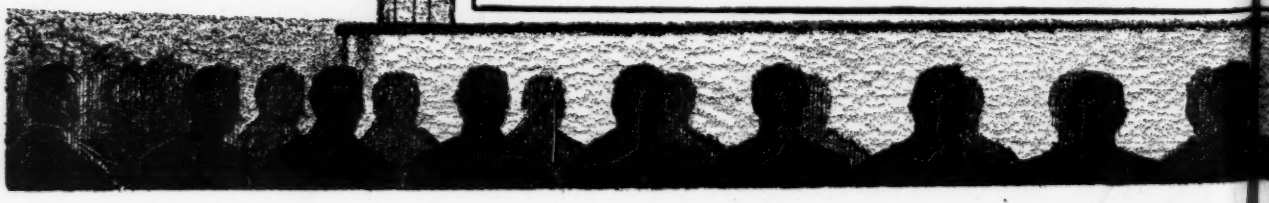
In our opinion, it vindicates the statement we hav made for many years, viz., "Cast iron is more serviceable than wrought iron for waste and vent".

We trust this will be entirely satisfactory and of some interest to you, we are,

Very truly yours,

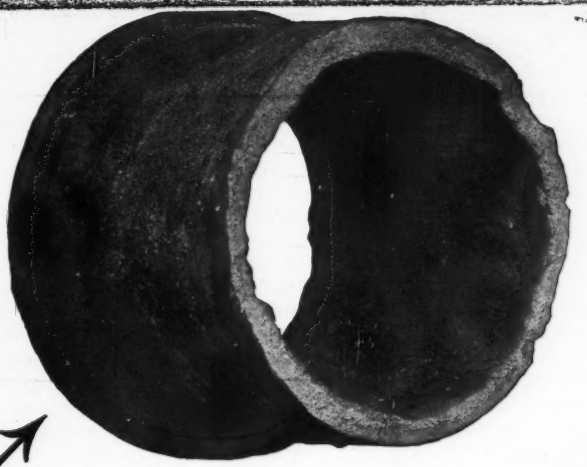
JCON/B

POLLACK & O'NEILL, Inc.
Per John C. O'Neill.



CAST IRON SOIL PIPE
...ise Drainage

What a leading plumber says



Three-inch Cast Iron Soil Pipe "good as new" after 26 years

After 26 years of service

'The cast iron is in such good shape, we will use same over again'

'Cast Iron is more serviceable than wrought iron for waste and vent'

Cast Iron Waste and Vent Lines re-installed

Profit by their Experience

ARCHITECTS
PLUMBERS
ENGINEERS
BUILDERS

Use CAST IRON SOIL PIPE
for SOIL LINES VENT LINES
LEADER LINES WASTE LINES

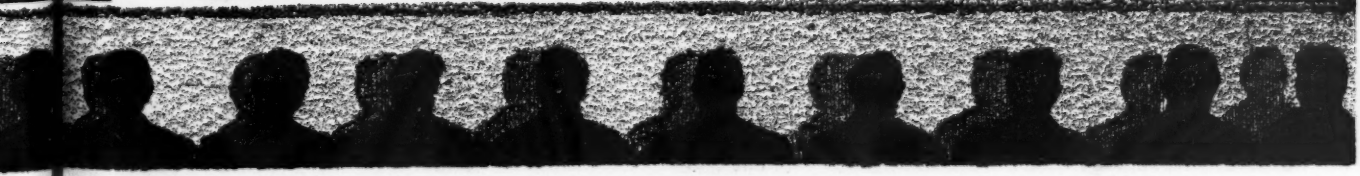
No corrosion – No menace of leaking sewage and sewer gases – No tearing out of floors and walls after pipe is installed

Use CAST IRON SOIL PIPE
for HOUSE DRAINS HOUSE SEWERS

No pollution under cellars – No stoppage by tree roots – No danger of breakage by jar or settlement – No costly replacements

CAST IRON SOIL PIPE LASTS LONGER THAN THE BUILDING

A-1034



...estic ...ering" when writing advertisers.

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

Officers of the Chicago Masters Plumbers' Association are planning to make the monthly meetings of the organization of keener interest to the membership. Vital subjects of intimate concern to them from a busines standpoint will be scheduled for discussion at the coming winter meetings, beginning with Friday evening, December 7th, when efforts will be made to induce a record-breaking attendance. It is conceded by the officers that the average association meeting needs some special feature for discussion to vary the monotony of routine business. The local trade are a unit in agreeing that there are problems confronting the craft, which should be more frequently discussed by the membership. At the December meeting, delegates will be elected to attend the annual convention of the Illinois Master Plumbers' Association to be held at Bloomington, Ill., on January 22nd, 23rd and 24th. A nominating committee will also be appointed with instructions to nominate officers for the local association for the ensuing year.

In order to counteract the period of dullness which is prevailing more or less among plumbing contractors, the progressive element of the local trade is advocating the taking on of side lines, while they are waiting for "something to turn up," or anticipating the return of normal activity in the building trades. The trade is urged to utilize the present time in merchandizing, selling small fixtures, bathroom accessories, vacuum cleaners, etc. It is understood that a number of the local plumbers are already putting this idea into operation with considerable success.

Walter & McCarthy, of 2556 West Division Street, have recently been awarded the contract for remodeling the plumbing in a residence at Lake and Keystone Avenues, River Forest.

The Roberts Plumbing Co., of 4710 North Western Avenue, will install the plumbing in an addition to a laundry, to be built at a cost of $14,000 at 458 West Thirty-eighth Street.

M. C. Opsahl, of 1478 Catalpa Avenue, has secured the contract for the installation of a heating system in a building of nine apartments, to be constructed at a cost of $18,000, at 1646-1648 Edgewater Avenue.

The contract for the installation of the plumbing in a six-family apartment building, to be erected at a cost of $15,000 at 4845 Christiana Avenue, has been awarded to J. A. Boecher, of 1321 Thorndale Avenue.

E. C. Oakes, of 3634 Fullerton Avenue, has been awarded the contract for the installation of plumbing systems in three residences, to be erected at a cost of $10,500, at 5037-5043 Wilson Avenue.

Henry Keppner, of 1324 South Fifty-sixth Street, will install the plumbing in a $10,000 addition to a church at 1331-1333 South Harding Avenue.

Paul H. Miller, of 1045 West Sixty-ninth Street, has been awarded the contract for the installation of heating in a residence and garage, to be built at a cost of $8,000, at 6743 Creiger Avenue. The plumbing contract was awarded to the South Shore Plumbing Co., at 7448 Cottage Grove Avenue.

W. D. Morant, of 1478 Catalpa Avenue, has secured the contract for the installation of the plumbing system in a garage.

Other Cities in the State.

Ward & McMahon, of 318 Twentieth Street, Rock Island, have been awarded the contract for the installation of modern plumbing in an addition to an industrial home to be built at Twenty-first Street and Third Avenue in that city. The work will be started at once.

Otto Ohray, of 5918 West Twenty-sixth Street, Cicero, will install the plumbing in a new residence at Berwyn.

Dooley Bros., of 120 North Chestnut Street, Kewanee, have been awarded the contract for the installation of plumbing and heating systems in a public garage to be erected at a cost of $15,000 at 100 Tremont Street, Kewanee.

Allen, Myers & Co., of Rock Island, have been awarded the contract for the installation of a heating system in a church to be constructed at a cost of $7,000 in that city.

The Manion-Shepley Co., of Freeport, will install the heating system in a public garage, to be built at a cost of $15,000, at 138 Exchange Avenue, in that city.

E. L. Harris Plumbing Co., of Decatur, will install the plumbing in a $6,000 residence to be built in that city.

Connecticut

Charles W. Neuman has been appointed plumbing inspector for the town of West Haven, and Peter Wols has been named as his assistant. Mr. Neuman has been in the plumbing business for many years, and his selection by the board of selectmen has met with general approval.

New plumbing ordinances are being considered by the aldermen of the city of Waterbury. They were presented at a recent meeting of the board and briefly provide: That all plumbers shall be licensed by the board of works; that master plumers must have a regular place of business; and that a board of plumbing examiners be established composed of the plumbing inspector, two members of the board of public works, and two licensed plumbers, whose duty it shall be to examine applicants and grant certificates to such plumbers as pass the board's examination.

A contract for plumbing and heating in a house on Marvel Road, New Haven, for Harry Hall Atwater, has been awarded to Joseph Meadow.

Everett G. Dodge, a Hartford, Conn., master plumber, has filed a petition in bankruptcy, with liabilities of $1,717.

The Hopson & Chapin Co., of New London, has been awarded a contract for installing a heating plant at Fort Trumbull and is just completing a similar contract at

the state pier. Other contracts recently secured by this company are for a heating plant at the air station at Bay Shore, Long Island; heating in the naval reserve barracks at Bensonhurst, L. I.; and heating in the air station at Montauk Point, L. I.

Massachusetts

Contracts have just been placed for a new public comfort station for the city of Beverly, an improvement that has long been agitated. Three city departments, the engineering, building and plumbing inspection, co-operated in making the plans which are believed to be the best possible. The station will be located in the basement of the city hall building with separate entrances for men and women, and will be fitted with modern plumbing. The lowest bidder for the plumbing contract was the Lyman-Dupuis Co., $1,171, and this company was awarded the contract. Other bidders were Sheehan & Murphy, $1,295; J. F. Cabeen & Co., $1,449; Robert Robertson Co., $1,632, and Lewis Backer & Co., $2,100.

Bids have been received by the selectmen of the town of Onset for plumbing and heating the Temple building which is to be used as an armory for the state guard, and the contract has been awarded to A. Hunter & Co. for $1,895. Other bidders were: E. D. Eldredge, $2,300, and Whiting & Covill, $1,997.

Jeremiah Coholan Co., of 703 South Water street, New Bedford, has a contract for extensive plumbing work in connection with alterations and changes being made at the residence of Michael J. Leahy in that city.

George Starbuck & Co., plumbers, are planning to open an attractive show room in the Starbuck building at Turners' Falls.

Frank J. Low, of Chelsea, has the contract for plumbing in a new schoolhouse for the city of Boston. The building will be three stories high and cost about $150,000.

Contracts have been let for an addition to a fire station at 62 Marion Street, East Boston. The Massachusetts Sprinkler & Equipment Co., of 7 Water Street, will do the plumbing.

The R. I. Rice & Bennett Co., of 36 Chardon Street, Boston, has the heating contract, and J. C. McCarrom, of 29 Central Street, Boston, the plumbing, in a $40,000 residence, being erected at Newton for H. L. Felton.

John Gustafson, of 5 Lincoln Square, Worcester, has the plumbing contract in connection with alterations being made to a house on Cedar Street in that city for Mrs. Mary Baldwin.

Pennsylvania

Philadelphia and Vicinity.

Thomas D. Clark, of 277 South Eleventh Street, has been awarded the plumbing contract on the Quartermaster's barracks, which are being erected at the corner of Broad and Washington Streets.

Flynn & Love, of 1506 Sansom Street, are engaged with the installation of plumbing and heating systems in six new buildings at Gloucester, N. J., for the New Jersey Ship Building Co.

J. J. Rufe & Sons, of Doylestown, has been awarded the contract for the plumbing installation in the new county jail in that town.

T. F. Martin, of Jenkintown, has been awarded the plumbing contract on a new dwelling in Oak Lane.

A Time and Money Saver

Stop Guessing! Know the Net Cost, Then add a Living Profit.

THE **BRADFORD** Price Book gives you this information on every sale. No guesswork—no mistakes.

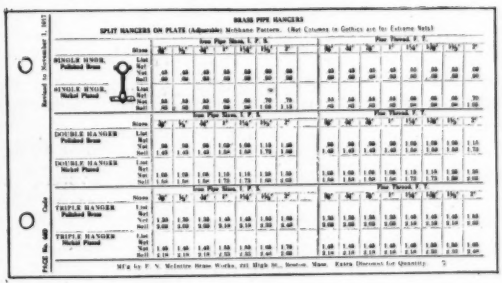
Revised edition ready for delivery January 1st.

It is not necessary to wait until the end of the year to arrive at your profits—use the Bradford Price Book and know as you go along.

A Big Office Help

"The book is certainly a great addition to the office equipment, and if it comes into universal use by men in the business, it will raise them to the level of a merchant plumber, from the curbstone many of them occupy.

WALTER B. WOLCOTT, Newton, Mass.



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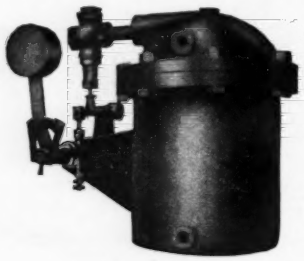
WILLIAM A. BRADFORD
Department C
5 Maple Street Quincy, Mass.

Maximum Service Minimum Cost

What every owner of a heating system wants.

The Lytton Thermo Syphon Trap

is designed to perform many important duties in connection with heating systems—in fact, it has been demonstrated as one of the greatest improvements in the heating field in the last decade.



Here Is What It Does:

Collects all condensation and discharges it direct into boiler as rapidly as it forms, irrespective of pressure in boiler or system.

Takes returns from below boiler water line and discharges into boiler.

Removes air, promotes circulation, eliminates pounding, prevents burning of boiler and takes the place of electric or steam pumps.

Applicable to any steam heating system.

There are many other uses to which this Thermo Trap can be applied.

Let us give you full particulars.

Write for Bulletin No. 15.

Lytton Manufacturing Corporation

Manufacturers of

Direct Return, Steam, Vacuum, Lifting and Thermo Syphon Traps; Pressure Reducing Valves; Blow-Off Valves

Franklin, Virginia

New York

New York City and Vicinity.

Jarcho Bros., Inc., of Manhattan, have the contract for installing the plumbing in the new nurses' home at Peck Memorial Hospital in Brooklyn.

J. S. Murphy, of Manhattan, will do the plumbing work in a new government storage shed in Brooklyn.

Joseph Boesh, of Jefferson Avenue, Richmond Hill, L. I., will do the heating and plumbing work in a new residence at Kew Gardens for K. Haubner. He also will do similar work in a new residence at Kew Garden for H. J. Arnold.

G. Bower, of Port Washington, L. I., has the plumbing and heating work in Geo. H. Taggart's new residence in course of construction on the Baxter Estate.

G. Winkle, of Larchmont, will install heating and plumbing systems in a new residence and garage in Larchmont Park for Mrs. G. S. Watson.

Alex Auchinachie, of Binghamton, has secured a contract for the installation of modern plumbing in the Oak Street School; consideration $4,279. Gaylord & Eitapenc, also of Binghamton, secured the contract for the installation of a heating system; consideration $11,279.50.

Maryland

The H. E. Crook Co., of Baltimore, has been awarded the plumbing and heating contract for a barracks and mess hall, to be constructed at a cost of $50,000 at Fort Howard. Work will be started soon.

Building conditions throughout the state are improving continually according to building reports received from the principal cities. It is anticipated that, following the first of the year, there will be a big revival of residence building in the country districts and much factory construction in and about the larger cities.

Kentucky

Louisville and Vicinity.

The first cold weather of the season and first flurries of snow resulted in a big increase in the demand on the services of the local plumbers and steam fitters, and the entire trade has been a bit busier. Many inquiries are being received relative to taking out natural gas appliances, as the local supply has started failing in moderate weather. which means much trouble in the dead of winter. The Louisville Gas & Electric Co. has already warned the bakers and other large consumers through the press, to lay in supplies of other fuel, as they will be cut off in severe weather in an effort to protect the resident consumers.

Louisville plumbers were much interested in the recent announcement of the appointment of W. Edwin Glossop, local architect, to the position of city building inspector, under the new Republican administration, succeeding W. J. O'Sullivan, democratic officer, who resigned. Mr. Glossop is a modern architect, and with his assistance the local building trades are in hopes of being able to revise the building code so that it will be much more effective than the old one. One of the efforts is relative to having a code written which will eliminate much con-

struction that is not fireproof, and favor fireproof materials.

F. A. Clegg, Louisville heating and engineering contractor, who handled the big hospital heating contract on Camp Taylor, was one of a number of leading local business men, who were present at a big dinner given in honor of Mason & Hanger, general contractors, who completed the Camp Taylor job in Louisville within five months of the starting of the work. H. J. Scherich, of the plumbing firm of Scherich & Myer, who handled the special plumbing work, the firm representing Scherich & Myer and the Louisville Master Plumbers' Association, was toastmaster at the big banquet, which was held at the Seelbach Hotel, on November 20th. General discussions of the work, and how it was handled were heard, the gathering including lawyers, doctors, bankers, big business men, architects, builders, etc.

Russell Hart, who has been an active Republican worker for several years, and who is a brother of Marvin Hart, former heavy weight champion prize fighter of the world, has been endorsed by a number of friends for the position of plumbing inspector under the new administration. Hart and his brother Marvin for a number of years conducted a successful plumbing business. After retiring from the prize ring Marvin Hart was in business for himself, but has been in politics for the past few years.

Judge Walter Evans, of the Federal Court at Louisville, is expected shortly to pass upon an equity case, the controversy being between the Paducah Water Co. and the City of Paducah, relative to who is responsible for the cost of laying water lines from the street to the property line in the rebuilding of Broadway. The property owners refused to bear the expense, and the city contended that it was up to the water company, and an ordinance was passed requiring the water company to lay the lines. This ordinance was later rescinded when an injunction was filed by the water company. The city in order to proceed with the work installed the pipes, but the water company contends that it had nothing to do with the installation, and is not responsible, and the city must pay the expense.

W. B. Bryan, of the Belknap Hardware & Mfg. Co., of Louisville, was recently appointed state fuel administrator of Kentucky, by the federal board, and has been busy lining up his state board and local board.

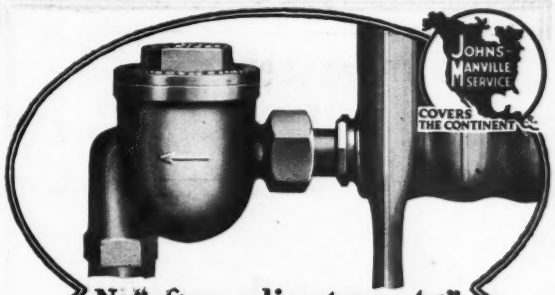
Ohio

Cleveland and Vicinity.

William H. Taft, former president of the United States, and now president of the American Red Cross, was the principal speaker at the 25th annual banquet of the Cleveland Builders' Exchange, attended by many Cleveland plumbers who are members. Other guests of honor were Col. and Mrs. Myron T. Herrick, former ambassador to France, and Mayor and Mrs. Harry L. Davis. Ex-President Taft urged an unrelenting prosecution of the war.

Preparations are now under way for the annual convention of the Ohio State Association of Master Plumbers, to be held at Dayton, February 5, 6 and 7. Dan Carroll, of Cleveland, is on the sanitary committee, and Eb Ellen, of Cleveland, is on the publicity committee. Eb Ellen, secretary-treasurer of the State Association, who has been confined to his bed for some time, is improving in health.

E. P. Roberts, former smoke inspector of Cleveland, who delivered a lecture at the Cleveland Engineering So-



No "after adjustments" to eat up your profits

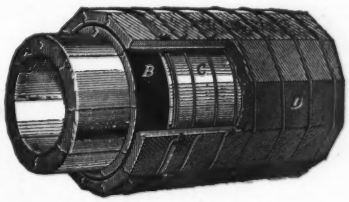
Five minutes to regulate a radiator trap doesn't sound very costly. But if there are 500 traps in the building, and each needs attention, then it's a week's time—and it comes right out of your profits.

That's just one of the ways you save money by installing Johns-Manville Radiator Traps. No valve or valve seat adjustments required or possible, and chances for trouble are cut to the limit. No expanding liquids, no springs, no restricted air passages; no steam leakage or air binding.

Just three parts—body, ball, and connecting union. Nothing to wear out—nothing to be tampered with. Its record in service will give you some new ideas on trap economy. Better get the details.

H. W. JOHNS-MANVILLE COMPANY
New York City
10 Factories—Branches in 55 Large Cities

Johns-Manville Radiator Trap



A—Inner Shell, 2 inches thick.
B—Asphaltum Packing.
C—Dead Air Space.
D—Outer Shell, 1 inch thick.

Cover Your Steam Pipes

WITH WYCKOFF'S IMPROVED

CYPRESS COVERING

Made of Gulf Cypress, the wood eternal

Not affected by wet and dry conditions common to steampipe trenches. Will not rot. Lasts twice as long as Pine Casing. Absolutely water and steam tight. Each shell is wound with heavy galvanized wire. Coated all over with the best known preservative—Hydrolene B.

Let us answer your questions and tell you all about it. Booklet on request.

A. WYCKOFF & SON COMPANY
Elmira, N. Y.

H. H. WHITE
378 Piedmont Ave., Atlanta, Ga.

10,000 PLUMBERS
Sold "LIONS" This Year

and received the lion's share of the copper coil tank water heater business in their territory.

THIS PROVES "LION" SUPREMACY

"Lions" are made in six sizes—single, double and triple coil, capable of accommodating tanks from 20 to 80 gallon capacity.

The distinctive features of the "Lion" have been imitated, but never equalled.

Go along with us next year. Your business is bound to increase.

See your jobber—write our nearest branch.

Pittsburg Water Heater Co.
PITTSBURGH, PA. 42 Branches

ciety rooms, Chamber of Commerce, last Monday night on Fuel Conservation, under the auspices of the Master Steam Fitters' Association of Cleveland, is now connected with the Pennsylvania Rubber Co., at Akron, O.

Information has been brought to the attention of the Municipal Plumbing Board that plumbing permits granted by the board have been used by more than one party. These permits are not transferable, and action has been promised against any one so breaking the law.

Arrangements are now under way among the various plumbing clubs of Cleveland for the dropping of one meeting each month in order that the plumbers of the entire city may get together at the monthly meeting of the Cleveland Master Plumbers' Association.

David H. Roberts, of Cleveland, former president of the National Association of Master Plumbers, recently underwent an operation on his eyes at Milwaukee.

Sam Wahl, of 2434 East 64th Street, has the plumbing contract on two $15,000 residences to be erected at 2980 Washington Boulevard, Cleveland Heights, for the J. J. Rauscher Co.

Curtis & Hardy, of 262 Northfield Avenue, have the plumbing contract on a $6,000 residence to be erected on Bellfield Avenue, Cleveland Heights, by C. B. Walkey.

A. J. Schreiner Plumbing Co., of 5303 Clark Avenue, has the plumbing contract on a $10,000 residence on Summit Court, Lakewood, for O. L. Merriman.

William Steffens, 2208 Cega Avenue, has the heating contract on an $18,000 residence at 18010 South Woodland Road, for J. W. S. Webb.

The Weiss Plumbing Co. has been awarded the plumbing contract for the new branch public library at West 25th Street and Mapledale Avenue. The cost of the building will be $20,300. Steam heat will be installed by the J. Roemer Heating Co.

T. S. Cannon, of 9612 East Avenue, has the plumbing contract on an $8,000 residence at 3034 Chadbourn Road, Cleveland Heights, for the Chadbourn Land Co. Melvin Jones, 179 North Lockwood Avenue, East Cleveland, has the steam heating contract.

Fred Miller, of 4644 Broadway, has the plumbing contract for a $4,500 residence at 10309 Almira Avenue, for August Gesko.

Minnesota

St. Paul and Vicinity.

J. P. Adamson has been granted a permit for plumbing work on the two-story brick and stone building being erected on the Concordia college campus at Syndicate and St. Anthony Avenues. The plumbing work is valued at $2,700. Other permits to Mr. Adamson are for plumbing work on the two-story frame house of F. Paulson at 1865 Capitol Avenue, and on the dwelling of M. Hathaway, 1857 Capitol Avenue.

Carl P. Dahlby has obtained a permit for plumbing work on the two-story frame house of C. Johnson, Chilcombe and Keston Streets.

John Dahlby has secured a permit for plumbing work on the residence of John Peterson, Ivy Street and Payne Avenue.

L. J. Rozycki has secured a permit for plumbing work on the frame building of the Lilly Construction Co. at Thomas and Griggs Streets.

E. J. Delaney will install modern plumbing in the Coffin Box & Lumber Co.'s new building on St. Anthony Avenue.

Wisconsin

The Wisconsin State Plumbing Code With Interpretations

A new edition of the Wisconsin State Plumbing Code, embodying an addition to the rules of the state board of health governing licenses, interpretation of the law, building classifications, new rules governing public toilet rooms, and much new material to guide in the construction of sewage disposal systems where public sewerage is not available, has just been issued. The new licensing provision is a rule allowing exchange of master plumbers' licenses for journeymen's licenses without examination or initial fee. Extracts of opinions of the attorney general construing the plumbing law are included. All buildings are classified according to the department or other state authority having jurisdiction over their construction and power to inspect. The volume contains the new general orders of the Industrial Commission and the state board of health defining the toilet room requirements for all public buildings and places of employment, which have the force of law and must be followed strictly in planning new buildings or changes in existing buildings. They apply to all buildings except private residences and two-family flats. A section is devoted to plans for installing sewage disposal systems in homes and industries, illustrated by sketches, plans and specifications.

A plumbers' directory containing a list of all licensed journeyman and master plumbers and plumbing contractors in Wisconsin has also been published by the State Board of Health. It also gives newly compiled data on Wisconsin cities where licenses are required and places where water and sewerage are installed, and other facts concerning the state and local regulation in this field of sanitary service.

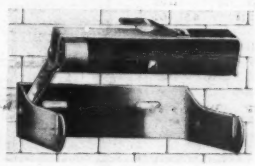
At present there are 1,134 journeyman plumbers, 634 master plumbers, and 437 plumbing contractors holding licenses from the state.

Green Bay Contractors Advertise,

In an effort to lengthen the building season and to urge the public to assist in promoting repairing and building during the winter season, the members of the Brown County Contractors and Builders' Association, among whom are a number of plumbing and heating contractors, have been carrying a four-column advertisement in the leading newspaper of Green Bay. It is an excellent form of co-operative or community advertising, in which the expense is shared proportionately by the contractors whose names and telephone numbers are mentioned in the advertisement. The advertisement is headed with the phrase—"In Co-operation with Your Government." This is followed by other timely arguments, some of which we quote herewith: "Cut down useless extravagance and waste." "You are wasting money if you do not take advantage of the winter season to do such work as repairing and building, which can be done practically as well in winter as in summer." "Our aim is to lengthen the building season—this can be done if we can secure the co-operation of the public. Some work you need done—the tendency is to wait until the last minute—at that time your contractor is no doubt busy. Do it now. It will be your gain. It will be everybody's gain." Among the plumbing and heating contractors, who are interested in this community advertising, are Geo. F. Reeke, Edward Garot, Joseph Prevot and Carl Hansen, all of Green Bay.

The B-E-N-S TOILET PAPER FIXTURE

A New Principle

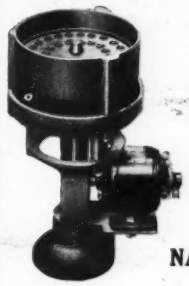


Which Pulls Trade

The Principle of "THE OPEN ARM"
Beautiful — Durable — Valuable

The S. J. Bens Manufacturing Corporation
HERKIMER, N. Y.

Your Customers Want This Novel Device



The NATIONAL Rotary Oil Burner

Is adaptable to any boiler, water heater, furnace, kitchen range, etc.

Burns kerosene or fuel oil without soot, smoke or smell. Perfect combustion.

Safer and cheaper than gas.

Write for folders.

NATIONAL ROTARY OIL BURNER CO.
235 Congress St., Boston, Mass.

SOMETHING ENTIRELY NEW IN

SILL-COCKS

Semi-Finished, Polished aluminum wheel Style N. Style O—Heavy rough pattern built for service.

STYLE N Both shown in catalog D STYLE O

KINSEY & MAHLER CO. *Peoria, Ill.*

Smith's Jointless Hot Water Attachments

are the ONLY ones that give water circular motion and that have no obstruction to the natural movement of the water.

Smith's Maltese Heaters

are made in 3 sizes—can be used in any furnace.

Easy to install. Highly efficient. Thoroughly tested.

Write for Catalog.

Charles Smith Company
Lake and Dearborn Streets Chicago

PRICELESS TO HEATING CONTRACTORS

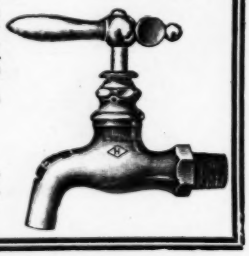
This manual and scale offer a new and simple way of computing radiation in a few minutes, based on the actual B. T. U. transmission. This places at your instant command information and data ordinarily available only to the best heating engineers and eliminates all guess work from your estimates.

We will send manual and scale to any reliable firm on ten days trial, if not satisfied return to us and it will not cost you one cent.

GREENWOOD & O'NEILL, : Princeton, Ill.
Ask your jobber

"Quik - Ope"
Compression Goods
Most reliable line on the market.

Opens exactly on 1-4 turn. Positive action. Valve can't work open and leak. The improved stuffing box does the trick.
Made of red metal. Incomparable finish. Triple nickel plated.



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have been produced with a scientific consideration of their worth to the trade, each trap scientifically proven best for its distinctive use. Concentrate your mind on this fact. Under the abnormal conditions CLEAN SWEEP Lead and Brass TRAPS are the best and lowest priced traps today on the market in proportion to actual worth.

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Second Avenue and Antoinette Street DETROIT, MICH.

California

San Francisco and Vicinity.

The plumbing supply trade here is now trying to figure out just what may be expected in the car situation during the winter. For some time past there has been no assurance that shipments of goods would reach their destination in anything like reasonable time, and now the reports from the East indicate that the car shortage will be considerably increased during the next few months. The news that a hundred or more lines of merchandise are shortly to be classified as non-essential, and forbidden shipment during these pressing times, has been received with more or less mixed feelings, some lines of interest to the trade being clearly essential, some doubtful and some clearly in the non-essential class.

Stocks of most lines held in the city are considered adequate for present requirements, barring especially large orders from the government. The demand for private work is not particularly large just as present, and is not expected to attain large proportions before the early spring; but there is a steady call for the plumber in repair work of various sorts, and with the entire wet season still to come, a larger amount of small work is predicted for the near future.

Mark C. Cohen, director of the State Housing Commission, has left this city for an extended tour of the cities and towns of California; and, according to all accounts, his trip should stir up quite a bit of business for the plumbers throughout the districts visited. The commission has just issued a state housing manual, containing the tenement house, hotel and dwelling house regulations recently put into law.

T. J. Hately, senior member of the firm of Hately & Hately, Sacramento, has been visiting the trade in this city this week. He reports business in the Sacramento section as very active, all things considered.

Local plumbers report that a good deal of school work is now being figured on for country schools in the section tributary to San Francisco Bay. San Mateo, Alameda and other counties will do considerable work during the next few months.

J. F. Dixon, assistant chief plumbing inspector, of Kansas City, Mo., who is making a trip through the West, was in San Francisco this week.

J. N. Fitzpatrick, manager of the N. O. Nelson Manufacturing Co.'s branch in Los Angeles, visited San Francisco for a few days last week.

Notwithstanding the unusual conditions in the materials market, builders are again taking more interest in apartment house construction, plans having recently been announced for a number of apartment structures of moderate size. This week plans were announced for a five-story and basement apartment house to be erected for C. Cross, on Leavenworth Street, near Geary, at a cost of $30,000, and for a two-story apartment house for Sophia Brotherton, on Broadway, near Gough, at a cost of $35,000.

The J. C. Hurley Co., of this city, was the lowest bidder on the contract for the installation of a new heating plant in the Kirk School building at Fresno, this company's figure being $7,820. Other bidders on the work were: The Standard Sheet Metal & Heating Co., of Fresno, $8,440, and the Ideal Heating & Engineering Co., of San Francisco, $8,060.

A good deal of country hotel construction is in plan

with prospects for early construction. This week plans are out for a fifty-room modern hotel building at Walnut Grove, for a one-story brick bungalow hotel building at Woodlake for the tourist trade, and for the rebuilding of the El Monte Hotel, at Sisson, recently destroyed by fire.

Other Cities in the State.

George F. King has drawn plans for a new theater to be erected on Park Street near Encinal Avenue, Alameda, to cost about $70,000. The theater will have a seating capacity of 1,500.

The Vacaville Hotel Co. has been incorporated here with a capital stock of $40,000 for the purpose of erecting a high-class modern hotel in Vacaville.

C. E. Akers, of Sisson, has purchased the plumbing business of Holland Steele in that town.

Thomas Haverty, of Los Angeles, has secured the contract for the plumbing and heating in the J. B. Van Nuys bank building, on South Spring Street, in that city, his figures for the work being $5,915.

The Board of City Trustees, of El Centro, has accepted plans and specifications for the proposed municipal filtration plant, and bids for the installation of the plant will be called for within a few days.

Oklahoma

The Ideal Plumbing & Heating Co., of Muskogee, has recently been awarded the contract for installing the plumbing and heating system in a Y. W. C. A. building, to be erected at a cost of $225,000, at Tulsa. Work on the foundation for the building has been started.

White & Smith, of Clinton, will install the plumbing and heating work in a school, to be constructed at a cost of $15,000, in that city. Work has already been started.

West Virginia

L. H. Diebler, of Elkins, has been awarded the contract for the installation of a modern plumbing system in the United States postoffice, to be erected at a cost of $58,700, at Indiana, Pa.

H. A. Hammon, of Martinsburg, has recently been awarded the contract for the installation of plumbing and heating systems in the addition to and alteration of a residence on Boyd Avenue.

Obituary

John Drexel.

John Drexel, former city plumbing inspector of Reading, Pa., died suddenly from heart failure in his plumbing office in that city on Friday evening, November 16th. Mr. Drexel was born in Reading 58 years ago. He learned the plumbing trade in his youth and engaged in the plumbing business on his own account more than 30 years ago. He served as city plumbing inspector for several years. He was a member of the Lutheran Church and of several fraternal organizations. His wife and one daughter survive him.

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Conserves coal.
Operates noiselessly.
Requires minimum attention.
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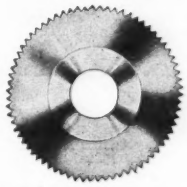

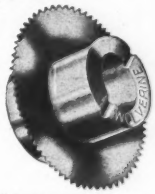

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DRAIN PIPE SOLVENT

Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $3.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

10,000 plumbers now use Blue Seal. Over 300 jobbers stock, sell and recommend it. If you haven't used it, this is your opportunity.

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keeps *last section* of radiator hot as well as the first.

Absolutely automatic.
Non-adjustable.
Expels all air and prevents its return.
Will not leak steam or water.
Made of highest quality steam metal and phosphor bronze. Will outlive the heating plant.

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Adjustable Galvanized Iron and Copper
ROOF FLASHING

Perfectly adjustable to any pitch from 50% to flat. Highest quality material. Highest quality of workmanship.

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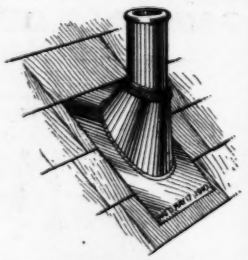

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THE NEW PLUMBING ORDINANCE FOR NEW BRITAIN, CONN.

THE city of New Britain, Conn., has recently passed a new plumbing ordinance, which is incorporated in the laws of the city as Sections 322 to 368. New Britain has a population of about 45,000. The plumbing ordinance follows herewith in full:

Section 322. Inspection. Power of Board of Health.—The plumbing and drainage of all buildings in the city of New Britain shall be subject to the inspection of the Health Commissioners, and for this purpose they are hereby authorized to enter into or upon any building, either in course of construction or otherwise, in said city. Whenever upon such inspection it shall appear to the Board of Health that the plumbing or drainage is defective, or that any soil pipe or ventilating pipe from any building is placed and maintained with its opening below the roof or roofs of surrounding buildings, so as to be detrimental to the health of the neighborhood, they shall issue such orders for the immediate remedy of the defects discovered, as they may deem necessary.

Section 323. Penalty.—Every owner of a building who shall fail to execute any order issued in accordance with the foregoing section, shall be punished by a fine of $10 for each and every week of non-compliance with said order.

Section 324. Plans to be Approved by Health Board.—No building shall hereafter be erected, or in any material manner be altered, or repaired unless the owner or person having charge of such erectional alteration or repairs shall have first submitted the plans, specifications and details therefor, insofar as the same shall relate to plumbing, ventilation and drainage, to the Board of Health and receive from said board their approval thereof. Said board shall have power to approve, reject or modify such plans, specifications and details, and to issue such instructions relating to said work as they shall deem proper for the protection of health.

Section 325. Conformity to Specifications.—No plumber or contractor for plumbing work upon any building shall construct any work, as aforesaid, until such approval has been first obtained, and in the construction of such work, strict conformity shall be had to the following specifications.

Section 326. Notices and Permits for Plumbers.—Every master plumber, before doing any work in or upon any building, shall, except in case of repairs of leaks, file at the office of the Board of Health, upon blanks to be provided for the purpose, a notice and description of the work to be performed, and no master plumber shall start any work until he has obtained from the Board of Health a permit to do the same. Permits shall be granted to none but those having a master plumber's license.

Section 327. Separate Connections with Sewers.—All houses and other buildings on premises abutting on a street in which there is a sewer shall be connected with said sewer by the owner or agent of the premises. Each house must be separately connected with the sewer and when possible the connection must be directly in front of the house or premises. The plumbing system of every building shall be entirely separate from that of any other, except when there are two buildings on one lot, one in the rear of the other, and then if the sewer is of sufficient size and proper grade, both buildings may be connected to said sewer.

Section 328. Quality of Material.—All material must

be of good quality and free from defects. All work must be executed in a thorough and workmanlike manner.

Section 329. Sanitary Sewer. Requirements For.—The sanitary sewer, from the street line to its junction of the building drain, must be of salt glazed tile, or iron pipe, not less than five inches in diameter. It must be laid upon a true water grade, and the hubs so laid that the grade of the pipe shall be uniform and have an even bearing throughout its entire length, with a fall of not less than one-quarter of an inch to the foot, and more when practicable. All joints shall be calked with jute or oakum with calking irons, and uniformly filled with Portland cement, and the joints shall be wiped out when the pipes are laid. Old drains must never be used for new buildings, except by permission of the Board of Health.

Section 330. Drains, How Constructed.—All drains within and to a distance of three (3) feet outside of the building, shall be of cast iron pipe, as least four (4) inches in diameter for the main drain, and not less than two (2) inches in diameter for sinks, trays or other fixtures, with tight calked leaded joints. The drain in the building shall have a fall of not less than one-quarter of an inch to the foot, and more if possible.

Section 331. Running Traps.—A running trap shall be placed on the drain just inside the wall; this trap must be furnished with two handholes having brass cleanout plugs calked into the top of same for convenience in cleaning, all cleanouts must be brought even with the surface so as to be accessible, cleanouts of the full size must be placed at the end of every horizontal line and at every thirty feet.

Section 332. Air Inlet.—The trap on the main drain shall have an air inlet of iron pipe, not less than four (4) inches in diameter, entering on the house side of the trap, and leading to the outer air, opening at some place not less than five (5) feet from the nearest window or ten (10) feet from a cold air box for a furnace.

Section 333. Trap for Surface Draining.—Cellars may have a trap for surface drainage provided with a brass cleanout plug calked into inlet of same. This trap shall be connected with the storm drain, and must never be connected with the sanitary sewer, except by special permission of the plumbing inspector.

Section 334. Soil and Waste Pipes, Construction Of.—Every vertical soil or main waste pipe must be of cast iron, or galvanized wrought iron, or wrought steel galvanized, and the ends of such pipes must be reamed out. Such pipes shall extend the full size through the roof and at least two (2) feet above it, and shall not be less than two (2) inches in diameter from a point about two (2) feet below the roof through and above the roof. No cap or cover shall be put upon the top of such pipe, but a strong wire basket may be securely fastened to it. Each length of soil or waste pipe must be securely fastened and each vertical line of pipe must rest on its base on a proper foundation to prevent settling. There shall be a proper size cleanout fitting on the drain at the foot of each vertical soil and waste pipe. All joints in cast iron drain, soil, waste and vent pipe must be filled with oakum and molten lead, and calked so as to make them water and air tight. Where screw joints are used, they shall be made up in lead, and made tight the same as cast iron pipes.

All brass pipes used for traps, soil, waste and vent pipes must be of wrought iron pipe size with the exception of

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Saves Time, Bother and Expense

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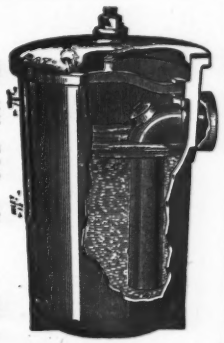

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Special clean-out feature. Handhole is extra large, making it easy to remove grease.

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such brass pipes as may be used for overflows, and waste pipes between the trap and the fixture, threaded connections on brass pipe must be of the same size as wrought iron pipe threads. All traps must meet with the approval of the Board of Health. Every pipe passing through a roof must be made perfectly tight by means of roof flanges made of sheet lead the weight of which shall not be less than four pounds per square foot, or of copper, which must meet with the approval of the Board of Health.

Section 335. Changes in Direction.—All changes in direction in soil or waste pipes shall be made with curved pipes and all connections with "Y" branches and one-sixteenth or one-eighth bends if possible. T Ys will not be allowed on horizontal lines. One-quarter bends with heels or side outlets will not be allowed on horizontal or vertical lines. Offsets must be made with one-sixth, one-eighth or one-sixteenth bends.

Section 336. Fittings to be Sound.—All iron pipes must be sound, free from holes, cracks or other defects, and of the grade known to commerce as extra heavy, up and within five feet of the roof, from this point and through the roof standard cast iron may be used. All fittings used in connecting iron pipe shall correspond with it in weight and quality. When wrought iron galvanized pipe or wrought steel galvanized pipe is used for soil or waste pipe regular galvanized recessed fittings must be used. All fittings used for wrought iron, wrought steel, or brass waste pipe must be of the long sweep pattern. Brass ferrules must be of the following weights: Four-inch, two pounds, two-inch, fourteen ounces. Flat top ferrules will not be allowed on waste pipes.

Section 337. Drain Pipe, etc., to be Uncovered.—All drain, soil, waste and vent pipes shall be as straight, direct and concentrated as possible, when necessarily placed within partitions or in recesses in walls. They must never be covered, except with wood work fastened with screws, and so arranged as to be readily removed.

Section 338. Wiped Joints.—All connections of lead with iron pipes must be made with brass ferrules or brass solder nipples of the size of the outlet in the iron pipe with which they are to connect, the lead pipe must be connected to the brass by a wiped joint; all connections of lead, soil, waste or vent pipes shall be made by means of wiped joints.

Section 339. Protection From Syphonage.—All traps must be protected from syphonage or back air pressure by a vertical air pipe of cast or galvanized wrought iron or galvanized wrought steel. In no case less than 2 inches in diameter for water closets, and 1½ inches for other fixtures. Not more than eight fixtures can be connected to 1½ inches, for more than eight fixtures it shall be 2 inches in diameter, except where a fixture enters a waste pipe above all other fixtures and the waste pipe is carried through the roof of undiminished size, provided the trap of such fixture is located not more than two feet from the waste pipe, and water closets when located less than ten feet from the main soil pipe, the revent may be omitted.

Section 340. Diameter of Vent Connections.—The diameter of vent connections for traps shall not be less than the waste pipes they serve, except water closets, which shall not be less than two (2) inches, and which shall be taken from the lead bend as near to the water closets as possible.

Section 341. Vents for Other Traps.—Vents for other traps shall be taken from the crown or from the top of the waste pipe near the trap.

Section 342. Vent Pipes to Go Up.—Vent pipes from fixtures shall always go up, never down.

Section 343. Main Vent to Go Through Roof.—The vent pipe for each fixture shall connect with the main vent pipe at a point above the fixture. The main vent pipe may be carried through the roof, or it may be connected with the soil pipe extension above all fixtures.

Section 344. Unions on Vent Pipe.—Unions on galvanized vent pipes and brass waste and vent pipes, shall be made by means of metallic brass seated ground union; slip joints or packings will not be allowed on sewer side of trap.

Section 345. Steam Discharge Into Sewer Forbidden—No steam exhaust, blow off, or drip pipe from a steam boiler, shall connect with the sewer or any drain, soil or waste pipe. Such pipe must discharge into a tank or condenser from which a suitable outlet to the drain may be provided.

Section 346. Specifications for Lead Pipe.—No lead waste pipe shall be used except for short branches on horizontal lines, in no case over six feet in length; nor shall lead vent connections be used over two feet in length. Lead pipe must be of the following size and weight:

Diameter Inches.	Weight Per Running Foot
1½ inches	3½ lb.
2 inches	4¾ lb.
3 inches	6 lb.
4 inches	8 lb.

Lead traps and bends must be of the same weight per running foot as lead pipe of corresponding size. All waste pipe must not be less than 1½ inches in diameter.

Section 347. Waste Pipes to be Trapped.—Every fixture must be separately trapped, and traps must be placed as closely to the fixture as possible. All water closets must be connected by a brass floor flange properly soldered to the lead bend, the connection of the water closet and the floor flange must be made by a graphite or other suitable gasket and must be screwed to the floor with at least four brass wood screws of the proper size, regular water closet bolts must be used between base of closet bowl and brass floor flange, gaskets must be coated with white or red lead of proper thickness before being set. Brass flanges must weigh not less than one pound, and the design or pattern of all brass flanges must be approved by the Board of Health.

Section 348. Connection of Refrigerators.—Waste pipes from refrigerators, or overflow pipes from house tanks, shall in no case be directly connected with any soil or waste pipe, or with any drain or sewer.

No refrigerator, ice box or similar receptacle for food storage shall be connected directly with any drain or sewer or discharge upon the ground. Single refrigerators may be discharged into an open pan or other receptacle that may be emptied when full or into an open water supplied sink or equivalent appliance satisfactory to the Board of Health, such sink or appliance to be set not higher than three feet from the floor. Where there are two or more refrigerators, ice boxes or similar receptacles in a building connected to a single waste pipe, such waste pipe and its vent shall be continuous and run through the roof and such vent shall not open within six feet of an open soil or waste pipe, and such waste pipe connecting two or more refrigerators shall discharge into an open water supplied sink to be set as above designated and in such case both the sink and each refrigerator shall be properly and separatelly trapped. The sizes for waste pipes for two or three refrigerators shall be at least one and one-half inches and for more than three refrigerators at least two inches. All vertical waste pipes shall be of iron.

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The closet equipment you can depend upon for long and constant hard usage.

The special flushing mechanism flushes automatically without any attention or adjustment.

Made strong and durable. No weights, springs or other troublesome parts in tanks.

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Plate 349-B

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VAPOR MOUAT HEAT

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This Adjustment is easily made while the steam is on.

Nothing like it on the market.

Furnished with the DOLE without extra cost.

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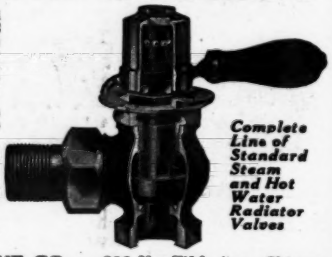

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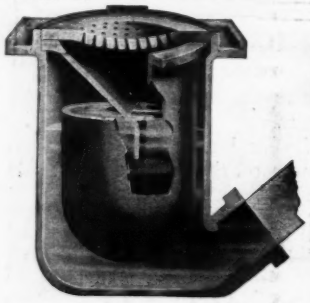

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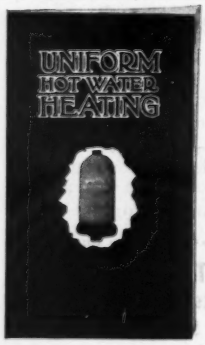

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Just what you want for that next job.

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Easton, Pa.

Section 349. Water Closets Forbidden in Cellars.—Water closets must never be placed in the cellars without special permit from the Board of Health, or in unventilated rooms or compartments; in every case the room or compartment must be open to the outer air, or be ventilated by an air shaft at least three feet square. In new buildings there shall be at least one water closet for each tenement.

Section 350. Pan, Hopper and Plunger Closets Prohibited.—Pan, hopper, plunger or offset water closets are prohibited; they will not be allowed under any circumstances.

Section 351. Pipes to be Tested.—All soil, vent, waste and drain pipes within the building must be tested by filling the whole system with water, and made tight, when notice shall be given to the plumbing inspector, who shall within a reasonable time inspect the same.

Section 352. Changes in Plumbing, How Regulated.—Whenever any changes are made in the plumbing or drainage of houses already erected, all new work must be done in accordance with the preceding rules, except in case of a new fixture taking the place of an old one which work may be done without reventing, and the testing of soil, waste and vent pipes with water may be omitted. When a single fixture is placed in building already erected, and plumbing installed, the revent may be omitted, provided a drum trap is used. Such drum traps must be self cleaning, the diameter shall not be less than two and one-half inches and have a water seal of a depth of two and one-half inches. Drum traps having interior partitions and deflectors are prohibited.

Section 353. Storm Water Sewer Connections.—All connections with the storm water drain must be made according to the following rules and regulations:

Section 354. Notice to be Filed and Permit Required.—Every master plumber, sewer or drain layer, before starting any work on the storm drain shall file at the office of the Board of Health, upon a blank to be provided the purpose for which the drain is to be used. And no master plumber, sewer or drain layer shall start any work until he has obtained from the Board of Health a permit to do the same. Permits shall be granted to none but licensed plumbers, sewer or drain layers.

Section 355. Construction of Drain.—The drain from the street line to its junction with the building drain must be of bell and socket salt glazed tile or iron pipe, free from defects, and not less than five inches in diameter, and for rain water leaders and other drainage, not less than three inches in diameter; it must be laid to suitable grade, and the joints must be calked with jute or oakum. and uniformly filled with Portland cement.

Section 356. Drains Within Building.—The drains within buildings when suspended on walls of the building or ceilings, shall be of cast iron pipe, of the grade known to the trade as standard soil pipe, and when buried in the ground shall be first quality salt glazed bell and socket tile, all fittings to be of the same material in making all connections. No such drain pipe shall be covered up until the same shall have been inspected by the plumbing inspector, who shall see that all joints are perfectly tight.

Section 357. Running Trap on Main Drain.—A running trap shall be placed on the main drain; it may be just inside or outside the building. This trap, if placed outside the building, must be at a depth to prevent freezing.

Section 358. Changes in Direction.—All changes in direction in the drain shall be made with curved bends, and all connections with Y or T branches.

Section 359. Rain Water Leaders.—All rain water leaders which are carried up within the building shall be connected with the roof by a heavy lead or copper spout having a brass ferrule soldered to same, and calked into the hub of the iron pipe with oakum and lead.

Section 360. No Fixtures Carrying Sewage to Connect with Storm Water Drain.—No fixtures used for domestic use, and carrying sewage, shall be connected with the storm water drain.

Section 361. Openings in Leaders, etc., to be Plugged.—When rain water leaders and such fixtures as are required to be disconnected from the sanitary sewer are disconnected, the openings in cast iron pipes shall be plugged with cast iron plugs, and calked with oakum and lead, and in tile pipe, they must be filled with Portland cement.

Section 363. Inspection of Work Required.—When the entire work is completed, and before it is used, notice shall be given to the plumbing inspector, who shall inspect said work and approve or reject same.

Section 364. Certificate of Approval.—When the plumbing and drainage work upon any building requiring inspection and approval, as aforesaid, shall be completed to the satisfaction of the plumbing inspector, he shall issue a written certificate of approval, a copy of which and all other proceedings in the matter, shall be kept on file, or recorded, and until such certificate has been issued, it shall not be lawful for the owner, manager or agent of said property to allow the same to be occupied.

Section 365. Penalty.—Any violations of the provisions of this ordinance shall be punished by a fine of not less than $10, nor more than $50, for each offense.

Section 366. Master Plumber's License.—No person shall engage as a master plumber in the business of plumbing in the city of New Britain without a license therefor. The Board of Health shall upon petition of any person and upon his passing a satisfactory examination, as to his qualifications, grant him a master plumber's license. The fee for such license shall be $3 and shall be renewed annually on the payment of a fee of $1.

Journeyman's License.—No person shall work as a journeyman plumber without a license therefor. The Board of Health shall upon petition of any person and after his passing a satisfactory examination, as to his qualifications, grant him such license. The fee for such license shall be $1 and such license shall be renewed annually on the payment of a fee of 50 cents. The Board of Health may waive examination on the renewal of either a master plumber's or journeyman plumber's license. Such licenses may be revoked by the Board of Health for violations of the plumbing ordinance of the city.

Section 367. Rules for Sewer Contractor's License, etc.—Every person carrying on the business of drain and sewer laying in the city of New Britain, shall, under such rules and regulations, as the Board of Health of said city shall prescribe, petition the said Board of Health for, and receive a license. The fee for such license shall be $3, and shall be renewed annually on the payment of a fee of $1; said license may be revoked by the Board of Health for violating the ordinance relating to drains and sewers. No person without such license shall lay drain or sewer pipes in said city.

Section 368. Penalty.—Any violations of the provisions of the foregoing sections or of the rules and regulations prescribed by the Board of Health with reference to the licensing of master plumbers or journeyman plumbers, drain and sewer layers, shall be punished by a fine of not less than $10 nor more than $50.

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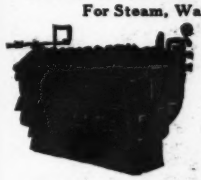

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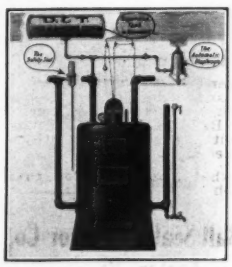

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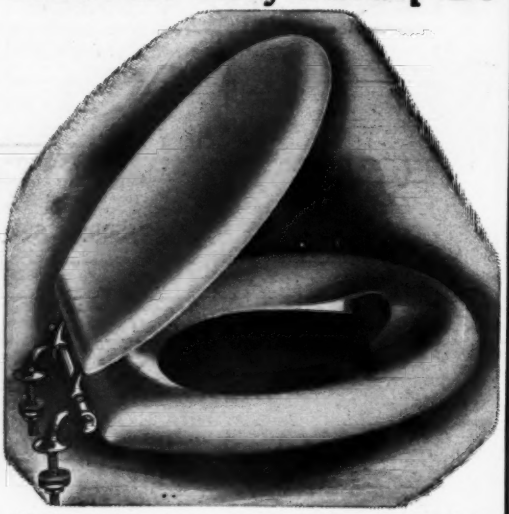

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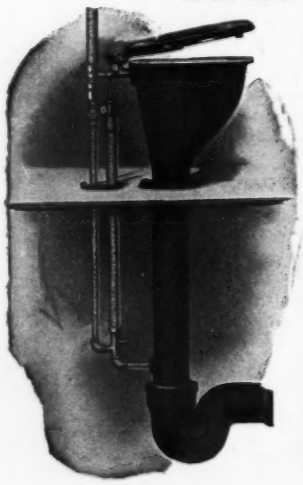

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Furnished with or without soil pipe.

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Pittsburgh Brass Mfg. Co.

Penn. Ave. at 32nd St.
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GAS HEATING.

(Continued from Page 344.)

as with the asbestos back fireplace, it is difficult to get perfect combustion because of the peculiar construction. However, the gas log is very popular and has been widely used in the past.

One of the latest types of individual or room heaters is the "gas-steam" or "gas-heated" steam radiator, two styles of which are illustrated in Figs. 7 and 8. These are similar in appearance to the ordinary direct steam radiator, are made with any number of sections desired, and are furnished with an atmospheric burner at the bottom as indicated. A small quantity of water placed in the radiator is evaporated by the burner and condensed in the upper part of the sections, thus giving off its heat in the usual manner. A regulator operated by the steam pressure automatically controls the gas supply and maintains a nearly uniform pressure.

In the radiator shown in Fig. 8 from 2 to 4 quarts of water are carried in the bottom, depending upon the size and the quickness of steaming desired. In a reported test of a radiator having 42 square feet of radiating surface steam was raised to 5 pounds pressure in 17 minutes, requiring a gas supply at the rate of 18 cubic feet per hour. After this pressure was reached a consumption of less than 8 cubic feet per hour was sufficient to maintain it for a period of 72 hours.

In the radiator, shown in Fig. 7, about 1 inch of water is placed in the bottom over the burner and from this 4½ pounds of steam pressure may be obtained in 20 minutes. The amount of water is indicated by a gauge glass and is easily replenished when it becomes low. Hot-water radiators of similar form are also made.

Radiators of the gas-fired type may be connected with a regular low-pressure steam heating system and used as gas radiators as an auxiliary to the regular system in spring and fall when the boiler is not in commission.

An important point to be considered in connection with individual gas heaters is the disposal of the products of combustion. Small portable heaters, which are only used intermittently, are not usually provided with a flue, but in case of larger sizes, which are in use more or less continuously a flue for carrying off the products of combustion are necessary, athough they should not be as large as for a solid fuel heater. While metal pipes are frequently used, they are not so desirable as tile, but if they are employed they should be well insulated in order to retain the heat which is necessary for a good circulation through them.

The outlet of flues of this kind is an important detail, and the vent pipes, in general, should be connected with a chimney or carried through the roof, although they may be carried to an open attic, provided it is unused and well ventilated. While a sufficient height of flue is required for the necessary draft, it is not desirable to have it too high, if carried up outside the building where the gases are liable to become cooled.

The products of combustion from a gas heater should never be discharged into a partition between the studding as is sometimes done, as they are simply diffused throughout the house and do not find their way outboard with any certainty.

While flues should be furnished, in general, for all heaters of any considerable size, they are especially necessary in case burners for an atmospheric flame are used, because, when an atmospheric burner backfires and burns in the mixing tube from the gas orifice instead of at the burner, imperfect combustion takes place and forms carbon monoxide, which is highly injurious to the occupants of the room.

During the combustion of gas the hydrogen which is lib-

erated combines with the oxygen of the air and forms water.

In the case of manufactured gas this will amount, on an average, to about 40 pounds per 1,000 cubic feet of gas, and if cooled below 212 degrees this moisture will condense, and must be provided for, or it will prove a source of annoyance. When room heaters are burned for only short periods, as when auxiliary to other systems, there will usually be very little trouble from this source, however.

AUSTRIANS MINING COPPER AND LEAD IN SERBIA.

Two-Thousand-Year-Old Mines Again in Operation.

After the occupation of Serbia in 1915 the development of the mines of the country was placed under the control of the Austro-Hungarian military authorities. It is now stated in the "Hungarian Press" that the copper mines of Majdanpek, near the town of Milanovac, were taken over by the troops of the central powers in October, 1915, and in January, 1916, the Austro-Hungarian State Railway Co. restored the broken connections so that the work could go on. Sulphur pyrites are obtained, and the copper ores found are smelted on the spot.

The mines were known and worked by the Romans, but afterwards fell into decay. About twenty-five years ago a company restarted them and erected a large smelter, but this had been stopped since 1912 as a result of the Balkan wars. At Zajaca, near the Bosnian border, antimony ore has been worked. The plant and premises were almost completely destroyed during the invasion, but in December, 1916, reconstruction was begun, and it is hoped that before long work will be in full swing again.

The lead-ore mining district of Ripanj is about twelve miles south from Belgrade. The existence of lead ore in this district was known in very early times, and the Romans worked the deposits. In 1888 modern methods were first applied, but mining was suspended in 1911 through lack of capital. It was resumed in December, 1915, by the Austro-Hungarian military authorities. In June, 1916, the first ore was obtained, plant was established for treating the ore, and concentrates were obtained containing 55 to 56 per cent of lead and 20 per cent of zinc. The lead concentrates are smelted in the interior of the country, the zinc concentrates are enriched at the works, and are then sent to zinc smelting works.

In the neighborhood of Babe, also, 2,000 years ago, the Romans mined and smelted lead ores. The lead so obtained was well known in ancient times; it was stamped "Plumba Dalmatica," and was carried by beasts of burden to the Adriatic where it was shipped. Today the Austro-Hungarian military authorities have resumed the exploration of the mineral resources of this district.

FINANCIAL TROUBLES.

New York, N. Y.,—William H. Jackson, of 661 West 109th Street, has filed a petition in bankruptcy, scheduling liabilities of $4,554.

Salem, Mass.—Frank A. Wendell, a master plumber, has filed a petition in bankruptcy, scheduling assets of $900 and liabilities totalling $5,327.

Amsterdam, N. Y.—The plumbing firm of Donlon & Moore has filed a petition in bankruptcy, scheduling its liabilities at $33,726.39. Its assets consist of several parcels of land, and accounts and stocks, the latter valued at $2,332. The firm is composed of William Donlon and Maurice Moore.

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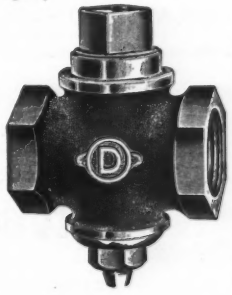
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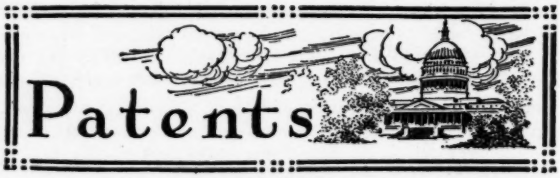
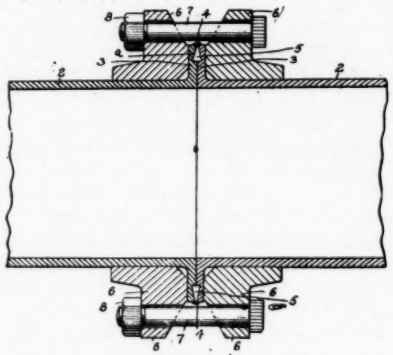


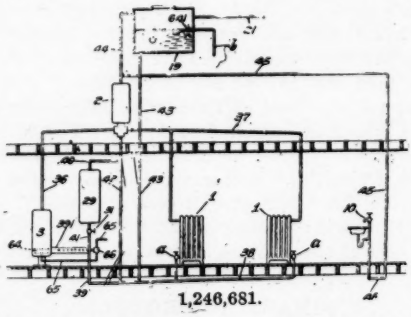
Heating Department.

1,246,091. Pipe-Joint. Henry E. Haller, Pittsburgh, Pa. A pipe joint structure comprising two flanged pipe sections with the flanges disposed in abutting relation, a weld binding said flanges together, said flanges having means forming a pocket or recess adjacent to the line of weld,


1,246,091.

ring coupling members encircling the ends of the pipe sections, and means for drawing the coupling rings toward each other.

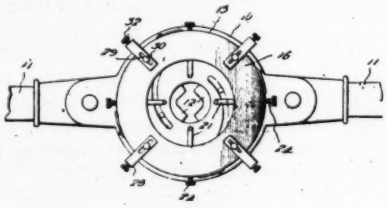
1,246,681. Hot-Water Heating System. Alfred H. Thompson, Venice, Cal. In a combined hot water domestic and heating system the combination of a hot water circuit including a closed distributer of substantial capacity, a heater and a radiator; the distributer being situated above the level of the heater; a service cock; a pipe leading from the top of said distributer to said service cock; and a supply pipe for the system; said supply pipe being


1,246,681.

adapted to produce pressure in the distributer and said distributer forming an enlarged chamber of substantial capacity capable of accommodating any accumulation of air or steam likely to occur in the system under the pressure of the water supply, and to prevent such accumulation of air or steam from reaching the circuit and thus stopping the circulation of water through the heating system, the pressure in said distributor operating to force the water through said service cock.

1,246,575. Die-Stock and Oiler Therefor. Matthew M Fickling and Cyrus B. Johnson, Columbia, S. C. In a device of the class described, the combination with a die stock, of an annual body provided with a plurality of oil

reservoirs, inwardly directed radially arranged tubes carried by said body and communicating with said reservoirs to deliver the contents thereof to an object being threaded, clamping members having radial adjustments and adapted to secure said body to a die stock, said reservoirs being

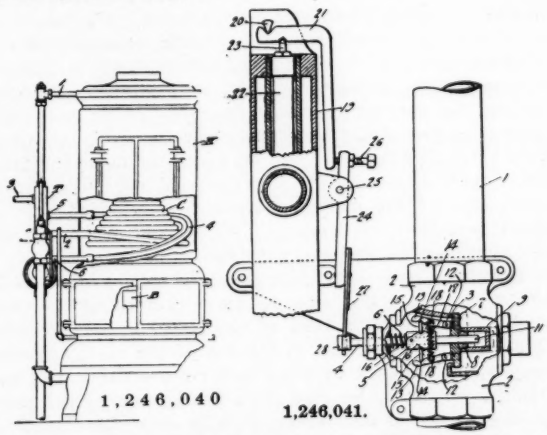


1,246,575

provided with filling openings, and a plurality of radially arranged needle valve screws for controlling communication through said tubes.

Plumbing Department.

1,246,040. Thermostatically Controlled Fluid Heater. Adolf Beler, Pittsburgh, Pa. A fluid heater including a fluid receptacle having an inlet and an outlet, a burner, a fuel controlling thermostat, means for conducting fluid from the receptacle outlet to the thermostat, said thermostat having an outlet, a fuel controlling valve, means operated by fluid under pressure while circulating through the receptacle to the thermostat and out of the thermostat, for opening said valve, and a normally inactive supplemental means having an inlet and an outlet in communication with the thermostat, for effecting continuous circulation of fluid when heated by the burner, through the thermostat and independently of the action of the pressure operated means.



1,246,040. 1,246,041.

1,246,041. Valve Mechanism. Adolf Beler, Pittsburgh, Pa. The combination with a valve seat and a valve, of a stem slidably mounted within the valve, opposed links extending from the valve, a spring connection between the links, means interposed between the stem and links for directing the valve onto or away from its seat under the action of the spring when the stem is brought to either of two predetermined positions, a spring for holding the stem normally in a predetermined position, and thermostatically controlled means for shifting the stem out of said position, said means including a resilient member.

1,246,084. Hot water Heater. George C. Gill, Peter S. Sinclair and Patrick J. Moakler, Holyoke, Mass., assignors to Holyoke Heater Co., Holyoke, Mass., a corporation of

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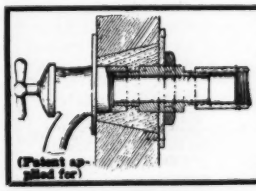

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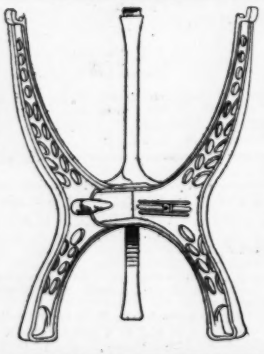

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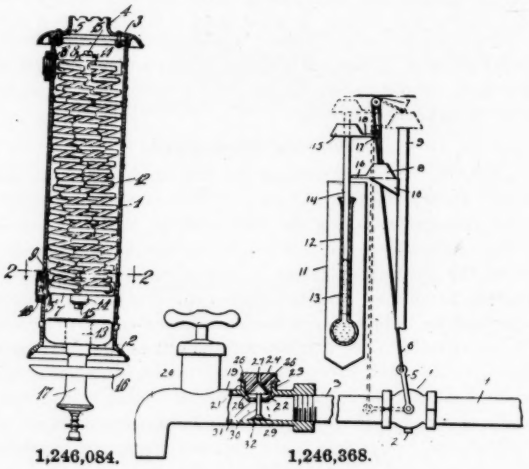
Manufacturers of
Iron Closet Bends, Vent Caps, Cesspools, Sink Brackets, Laundry Tub Legs, Etc.

Massachusetts. A hot water heater comprising heating coils located within a suitable inclosing casing, a heater at the lower end thereof, manifolds having their inlet and outlet ends terminating in and secured to the casing, one end of each coil is connected on one side of one manifold and its other end is connected to the opposite side of the other manifold, whereby said coils are arranged in spiral relation to the axis of the casing and the inner surfaces of the turns of the coils are twisted against each other in rope-like fashion to substantially fill the inclosing casing and to serve the purpose of a baffle to the free upward flow of the heated products of combustion from the burner through the casing.



1,246,084. 1,246,368.

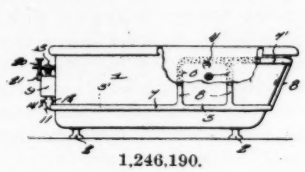
1,246,368. Automatic Water Cut Off. Goodridge B. Wilson, Camden, Tex., assignor of one-half to Lillie Belle Shotwell, Crockett, Tex. An automatic water cut off including a combined cut off and waste valve, a weight, means for supporting the weight in an elevated position, means for operatively connecting the weight with the said valve for closing the same when the weight falls, an arm extending from the weight, and a thermostat including a thermometer having a mercury column and a piston supported by the mercury column and provided with a head, said head constituting a weight and having means for engaging the said arm to displace the weight.

1,246,190. Bath Tub. John Vaudreuil, Milwaukee, Wis. An apparatus of the class described comprising a receptacle, a supply tank fixed to the wall thereof, an inlet control valve connected to the top of the tank, a three-way valve disposed between said control valve and the tank, a valved outlet pipe from the bottom of the tank to the interior of said receptacle, a by-pass pipe extending from the three-way valve to said outlet pipe, a socketed boss on said tank, the socket therein communicating with the interior of the tank, and a compressed air pump having one end disposed in said boss, said tank also having a supplemental filling opening in its top.

1,246,389. Hydrant. Guadalupe Buelna, Santa Barbara, Cal. A hydrant comprising a body, a swiveling invertible hose connection on said body, a valve stem in said body, a valve disk on said stem, means to operate said valve stem to cause the disk thereon to govern the flow of water through said connection, and means loosely fitting on and held against the end of said stem by water pressure also to govern the flow of water through said connection and to shut off the flow of water during dissociation of the hose connection.

1,246,813. Hot Water Heater. George C. Gill, Peter

S. Sinclair, and Patrick J. Moakler, Holyoke, Mass., assignors to Holyoke Heater Company, Holyoke, Mass., a corporation of Massachusetts. In a hot water heater, water heating pipes, an inclosing combustion casing in which the said heating pipes are located, an oil burner for heating the pipes, means comprising a removable perforated ring arc-shaped in cross section and located between the burner and the casing, said means forming practically an air tight joint between the burner and the combustion casing in order to direct the flow of the external air



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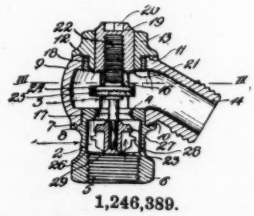

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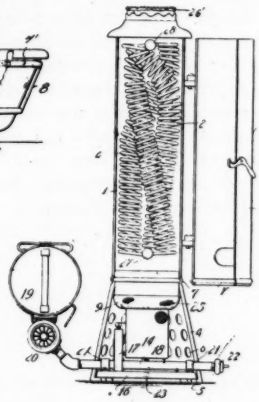
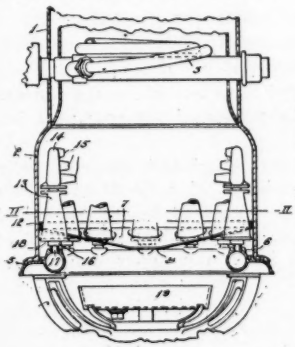


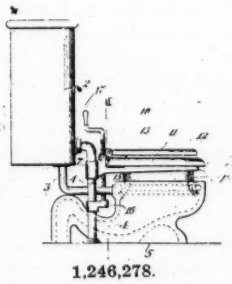
1,246,813.

through the perforations to the inside of the inclosing combustion casing above the burner, whereby the correct volume of air is supplied to the interior of the chamber in order to produce a blue flame and perfect combustion within the chamber and about the water heating pipes and consume all the vapors and gases from the burner.

1,246,523. Water Heater. Charles A. Backstrom, Crafton, Pa., assignor to Pittsburg Water Heater Co., Pittsburgh, Pa., a corporation. In combination in a water heater, a base, a burner ring therein, a bottom plate inclined downward to the center, and located above the burner ring and having an outlet adjacent the center, Bunsen burners mounted on the burner ring and extending through the bottom plate and having their air inlets below the bottom plate, and a drip pan positioned beneath the bottom plate to receive the drainage from the outlet from the bottom plate.



1,246,523.



1,246,278.

1,246,278. Seat. Dale M. King, Detroit, Mich. The combination of a closet bowl, supports in proximity thereto, a seat support slidable relative to said supports, a depending apron carried by said seat support extending into said bowl, and a screw carried by said supports and adapted for raising and lowering said seat support relative to said bowl.

For Pumping From Deep Wells Against Total Heads Up to 400 Feet

Goulds Fig. 1454 Deep Well Working Head is a popular type of pump for pumping from deep wells for both open and pressure tank water systems. This pump is built for capacities up to 56.3 gallons per minute and is furnished for direct connection to electric motors or with pulleys for belt drive. It is compact and exceptionally strong. The frame and base are cast in one piece. The stroke is adjustable (6, 8 or 10 inches) by changing the wrist pins in the driving wheels. The gears are machine cut from the solid. This pump is only one of many types of

GOULDS PUMPS
FOR EVERY SERVICE

suitable for use in office and factory buildings, hotels, apartment houses, etc.,—for water supply, circulating hot water in connection with heating systems, operating hydraulic elevators, circulating brine in refrigerating plants and many other services.

A complete set of bulletins describing our line of Centrifugal, Triplex, Deep Well, Diaphragm, Rotary and other types sent on request.

Write our nearest office.

Goulds Fig. 1454 Deep Well Working Head gear connected to electric motor.

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Branch Houses: Boston, New York, Philadelphia, Chicago

Main Office and Works: Seneca Falls, N. Y.

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Forget Your Valve Troubles

and incidentally your customers will have no valve troubles to forget, if you use

The Georgia Valve

in every low down tank you install. Different in construction from any other valve on the market.

BALL-COCK STEM SUPPORT

Has raised seat, Vim leather washer on cast brass disc fastened firmly to extra heavy stem guided above and below valve seat. Small float holding hinged finger against stem, so when disc is raised, finger engages integral flange on stem, holding it until tank empties. This permits float to drop and valve to reseat.

Write for circular giving full description.

Rundle-Spence Mfg. Company

65 Second Street, Milwaukee, Wis.

Our Canadian customers can procure these valves from The James Robertson Co. Ltd., Toronto, Canada.

Master Plumbers
prefer the
L. B. Ball Cock

because of its simplicity and lasting qualities.

Does more work and does it better than any other ball cock made.

Easy to assemble or take apart. **One Screw Releases all Parts.**

All moving parts wear equally and work smoothly.

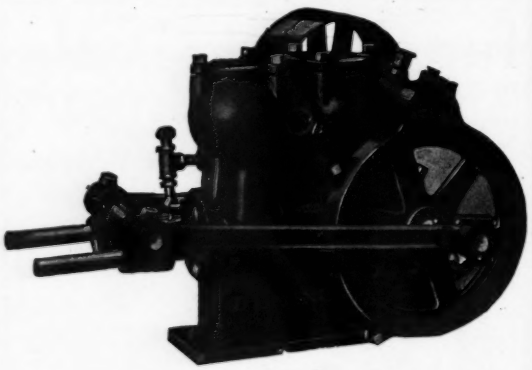
Made of Steam Bronze.

Cannot stick, bind, or get out of order.

The L. B. Ball Cock fits any tank—high or low—and works equally well under high or low pressure. What you have been looking for on your repair work.

Write for full description and price.

L. B. BRASS CO.
PEABODY, MASS.



DEMING

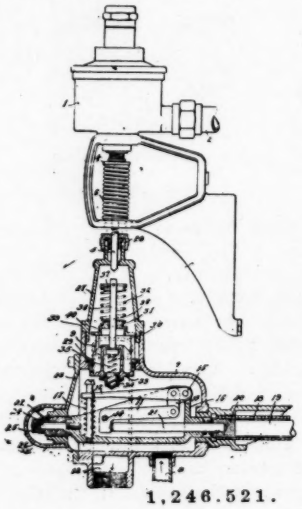
"Atlas" Power Pump

Is especially adapted for hydro-pneumatic service. Capacities from 600 gallons to 2500 gallons per hour. May be used also for general water supply. Our booklet "Deming Water Supply Systems" shows many complete water systems for deep or shallow wells.

The Deming Company, Salem, O.

GENERAL DISTRIBUTING HOUSES:
Henlon & Hubbell, Chicago. Harris Pump & Supply Co., Pittsburgh.
Root, Neal & Co., Buffalo, N. Y. Ralph B. Carter Co., New York City.

1,246,521. Water-Heater Construction. Charles A. Backstrom, Crafton, Pa., assignor to Pittsburg Water Heater Company, Pittsburgh, Pa., a corporation of New Jersey. In a water-heater construction, the combination with a casing provided with an inlet and an outlet and having an opening in its upper portion and carrying a thermostatic mechanism in its lower portion, of a downwardly opening valve between the inlet and outlet and above the thermostatic mechanism, an upwardly extending stem carried by the valve, a valve seat releasably held in position in the casing and removable upward with the valve through said opening in the casing, a spring carried by the seat and pressing the valve stem upward to cause engagement between the valve and the seat, a removable bonnet for closing the opening in the casing, and a stem slidably mounted in the bonnet and adapted to engage the valve stem, the said valve being moved by the thermostatic mechanism, but removable upwardly without interference therefrom.



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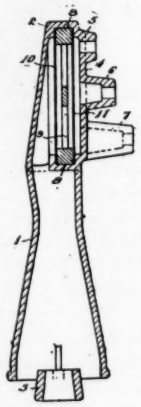
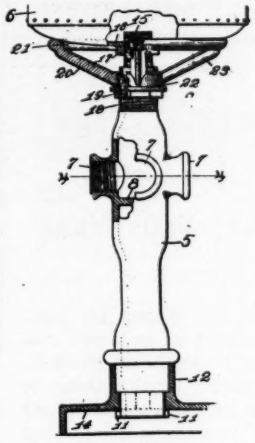


1,246,522.

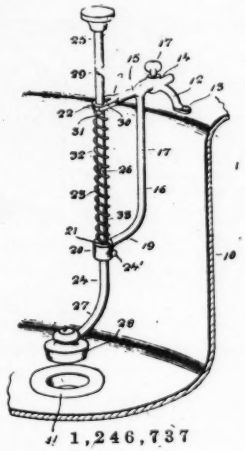
1,246,522. Burner. Charles A. Backstrom, Crafton, Pa., assignor to Pittsburg Water Heater Co., of Pittsburgh, Pa., a corporation of New Jersey. The combination with a Bunsen tube, of a head into which the tube opens, a gauze in the head through which the gas flows, and a plate at the front of the gauze provided with a plurality of horizontal rows of substantially horizontal discharge spouts, the spouts of each of the rows above the bottom row being shorter than the spouts of the row next beneath.

1,246,459. Combined Boiler Stand and Fitting. John Phillips, St. Louis, Mo., assignor of one-half to Robert Phillips, St. Louis, Mo. A combined boiler stand and fitting, the combination of a hollow standard having pipe connections formed in its body, the upper end of the standard being constructed of smaller diameter than the remaining portion, said smaller portion being threaded and adapted to be inserted into a container, a portion of the standard beneath the upper small end being of larger diameter and provided with screw-threads, an adjustable supporting ring loosely mounted on the large screw-threaded portion and arranged to communicate with the container for supporting the same in position, means for locking the same when in such position, means for supporting the small end in the container and a base mounted on the lower end of the standard, substantially as specified.

1,246,737. Basin Waste Valve. Charles H. Frickie, Watersmeet, Mich. The combination with a receptacle provided with a discharge opening, of a guide bracket secured to said receptacle, a spring operated rod mounted for movement in said bracket, a plug carried by the



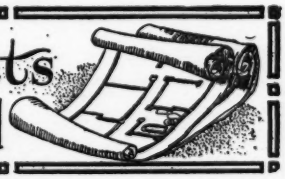
1,246,459.



1,246,787

lower end of said rod and adapted to be seated within said opening, means for locking said rod to prevent accidental displacement of said plug and means whereby the upper end of said rod may be rocked to lock the same without unseating the plug.

Contracts Awarded



Springfield, Mass.—A. F. Saxon has secured the contract for the installation of plumbing in the new Fire and Police Station in this city.

Grand Rapids, Mich.—Kruger & Neuman have been awarded the contract for the installation of modern plumbing in the new armory at Muskegon.

Dallas, Tex.—Crissman & Nesbit have been awarded the contract for the installation of modern plumbing in the court house. The contract amounts to $2,481.

Kansas City, Mo.—The J. J. Sherwin Heating & Plumbing Co. has been awarded the contract for the installation of plumbing and heating systems in the new Oppenstein Building, at the corner of Eleventh and Main Streets. The contract amounts to $40,000.

No Lawyer Needed.

An Atlanta lawyer tells of a newly qualified judge in one of the towns of the South who was trying one of his first criminal cases. The prisoner was an old negro charged with robbing a hen-coop. He had been in court on a similar charge and was then acquitted.

"Well, Henry," observed the Judge, "I see you're in trouble again."

"Yessuh," replied the negro. "De las' time, Jedge, you rec'lect, you was mah lawyuh."

"Where is your lawyer this time?'

"I ain't got no lawyer dis time," said Henry. "Ah's gwine to tell do troof."—"Oregon Journal."

"Reliability Their Main Feature"

Class "Q" Valve

Competence and Economy
Mark the
FOSTER
Low Pressure
REGULATORS
Class "Q" & "QH"

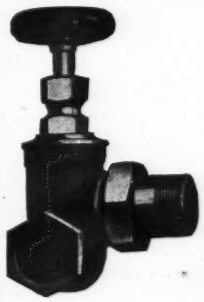
They Give Good Service:—Just have a talk with engineers who have been using these valves for years and get a line on their competent dependability—ask us for the names in your vicinity.

They Save Pipe Costs:—Class "Q" has the same size outlet and inlet, but when the reduction is considerable a much smaller valve may be used than the pipe would indicate. Class "QH" has an enlarged outlet which permits the use of a smaller valve than the full size of the delivery pipe.

Why not include Foster Class "Q" and "QH" in your next steam heating job?

Foster Engineering Co., Newark, N. J.

180 No. Dearborn St., Chicago, Ill.
161 Summer St., Boston, Mass.
404 Arrott Bldg., Pittsburgh, Pa.
712 Harrison Bldg., Philadelphia, Pa.

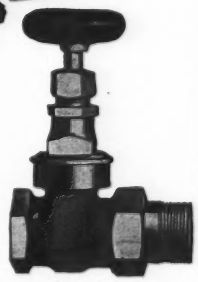


"CAPITOL" VALVES

stand on their own merits. Their reputation for highest quality and satisfactory service was established many years ago.

Uniform in size, thickness and quality.

Gate
Union
Corner
Lock Shield



We also make a full line of Boiler Trimmings and Gauges.

Write for Catalog

CAPITOL BRASS WORKS
Detroit, Mich.

Classified Advertisements

The charge for advertisements under this heading is $1.00 for 25 words or less, including heading and address; 4 cents each for additional words. To insure insertion, copy and remittance should reach us by Wednesday morning.

Situations Open

WANTED — FIRST-CLASS PLUMBER and fitter; steady man. Permanent position at union wages. Address Edward Vollers, 615 Front Street, Ft. Madison, Iowa. 12-1

WANTED—TWO LIVE SALESMEN TO handle our line of high grade brass goods on a commission basis in territory already developed. State age, experience in the field and give references. Address 2472, care "Domestic Engineering," Chicago. 11-10 tf

Situation Wanted.

SITUATION WANTED — SALESMAN. Heating. Know it from the ground up, both furnace and boilers. Could also adapt myself to plumbing. Traveling preferred. Address 2475, care "Domestic Engineering," Chicago.

For Sale.

FOR SALE—ENTIRE EQUIPMENT OF modern plumbers' brass goods factory: Turret lathes, drill presses, polishing lathes, gas engine, engine lathe, shaper, milling machine, coke furnaces, patterns for bath cocks, basin cocks, special patented goods, tools and equipment for making goods complete. Must be sold within thirty days. Address 2454, care "Domestic Engineering," Chicago. 9-15 tf

FOR SALE CHEAP—NO. 10 KEWANEE Boiler in good condition. Also some new big gate valves, pipe and fittings. Box 181, Waukon, Iowa.

FOR SALE—ONE-HALF INTEREST IN well established, profitable plumbing and heating concern. Partner having charge of office end of business is compelled to retire on account of ill health. Location in one of best towns in southeastern Michigan with population of 20,000. Inventory will probably run about $15,000. A bargain to quick buyer. Address 2455, care "Domestic Engineering," Chicago. 12-1; 15

Miscellaneous.

SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

WE BUY IRON PIPE COUPLINGS—spot cash. How many, either pounds or pieces have you of various sizes? Gwilliam Supply Co., 615 Christian Street, Philadelphia, Pa. 10-6,tf

SAVE TIME AND MONEY BY USING our new complete Billing and Charging System for plumbers. Send for samples and description. Wesley A. Fink, Haddon Heights, N. J. 11-10; 24

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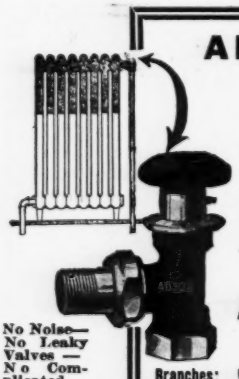
If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only four cents a word and may mean many dollars to you.



No Noise—
No Leaky Valves —
No Complicated Devices.

ADSCO HEATING

Atmospheric System—Steam or Vapor with the famous

ADSCO VALVE Graduated Radiator

And the ADSCO regulator. Controls heat with one valve at the top of radiator to heat ⅛, ¼, ½, ¾ as desired.

Saves 15% to 20% Installation Cost.

Saves 20% to 30% Fuel Cost.

Write for Bulletin 133-E

AMERICAN DISTRICT STEAM COMPANY

General Office and Works:
NO. TONAWANDA, N. Y.

Branches: New York Chicago Seattle

MARVEL

"2 in 1"
Adjustable Shower Trap

embodies the double drainage principle.

Used by most discriminating plumbers. The trap you will prefer after giving it a trial.

Cast iron, black or galvanized. Tapped 2-in. iron pipe.

We make a complete line of the famous MARVEL Traps.

Order from your jobber. Made by

DETROIT MARVEL BRASS MANUFACTURING CO.
326-332 Rivard Street, Detroit, Mich.

Permutit
TRADE MARK REG. U.S. PAT. OFF.

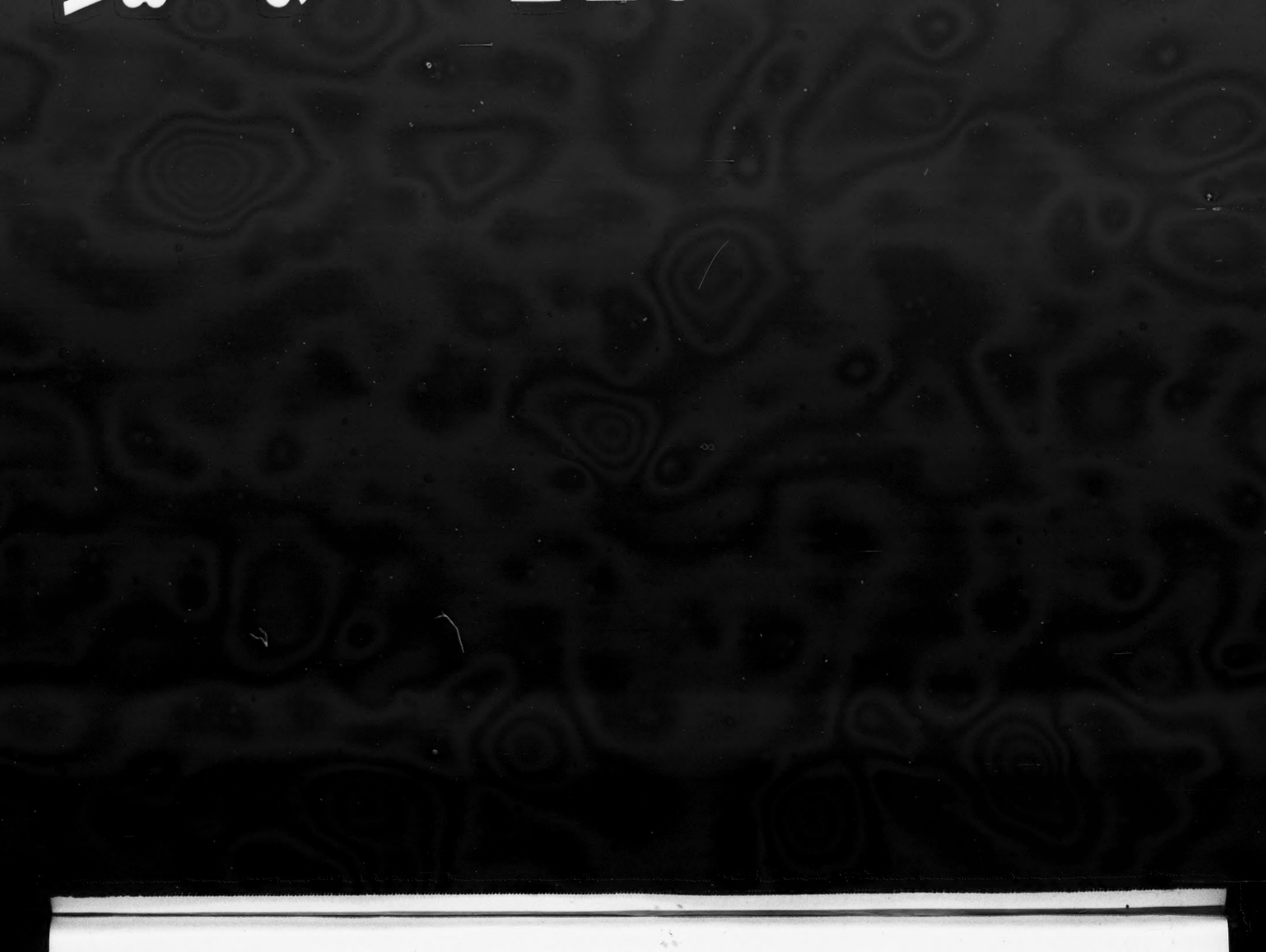
zero NO HARDNESS water

The Water Softening Filter
To Zero Hardness

We are conducting a nation-wide campaign to create a demand for "velvet water"—which only Permutit can supply. Inquiries are referred every day to the nearest plumber who is on our mailing list. Here is an opportunity to get in on a growing business—for soft water is becoming more of a necessity every day. Write us for the Permutit literature and the offer we make to plumbers. Let's work together for mutual profit.

THE PERMUTIT COMPANY
30 East 42nd Street NEW YORK CITY

"SEE-VEE" Vapor and Vacuum Specialties Save Fuel

Our Booklet on modulated and Vapor heating is full of instructive matter. It also illustrates and describes our specialties. Send for your copy.

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